JANUARY, 1953

WOOD and wood products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE
OF THE $9 BILLION FOREST PRODUCTS INDUSTRY

J. M. Brown, Sr.
See Wood Salutes

Features in This Issue

New Push-Button Hardboard Plant

Production Gains from Streamlined Plant Layout

How Oak Flooring Fights for Market

Answers to Veneer Core Warping

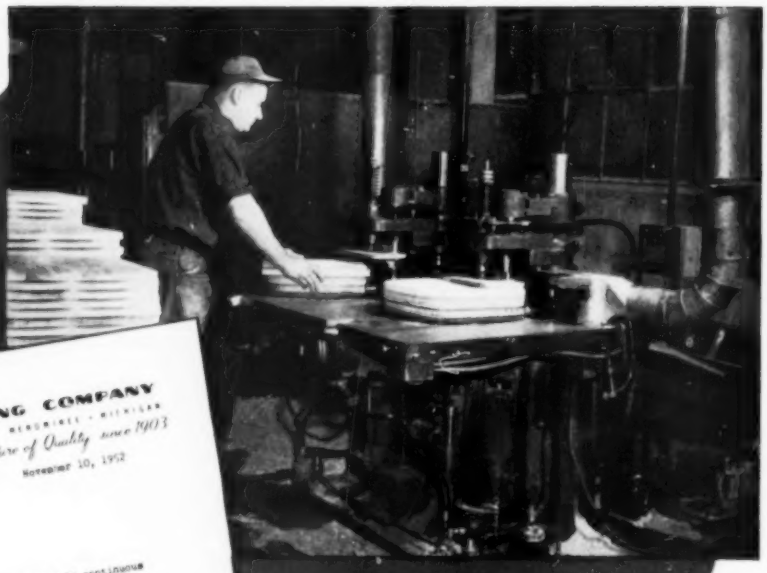
How to Keep Mill Going When Timber Runs Out

Other Items to See

- Editorial
- News and Trends
- Markets
- New Products
- Names and Events
- Letters

A Vance Publication

Another Enthusiastic User!



One of two Whitney Automatic Shapers at Lloyd Mfg. Co., shaping chair seats all around and handling many other production jobs.

THE Lloyd MANUFACTURING COMPANY
MENOMINEE - MICHIGAN
Furniture of Quality since 1903

November 10, 1952

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Winchendon
Massachusetts

Gentlemen:

Our Whitney Automatic Shapers have been in continuous service since they were installed several years ago. They turn out large quantities of uniform, smooth work and require a minimum of attention.

What we like about the Whitney Automatic is the quick, easy set-ups and practically no loss of time during change-overs. We keep them tooled up for many different jobs at all times. They are safe operating and our operators like them. We are more than pleased with their all-around performance.

Very truly yours,
THE LLOYD MANUFACTURING COMPANY
By Lyle Fehrenbach
Supt. Production

LF/lp

Cut your shaping costs with WHITNEY automatic SHAPERS

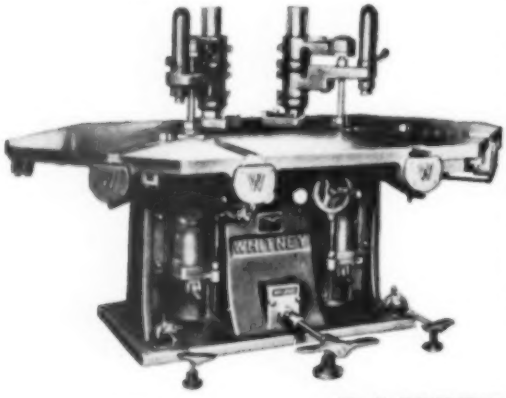
Lloyd Manufacturing Co., Menominee, Mich., makers of quality furniture and the nationally advertised "Rock-A-Feller" Chair, join with hundreds of manufacturers in their praise of the large output and the high quality of work produced on Whitney Automatic Shapers. Their letter tells the story.

Whitney Automatics are designed to handle tough production schedules on long or short runs and to produce smooth, uniform work. Precision-built spindles and accurate, solid construction assure accurate work, low operating and maintenance costs and years of trouble-free service.

For your important shaping jobs investigate Whitney Automatic Shapers. Write us or ask your Whitney representative for complete information. Ask for Shaper Bulletin M1

Whitney 2-spindle Automatic

Whitney Automatic Shapers are built in sizes and models for every shaping requirement.



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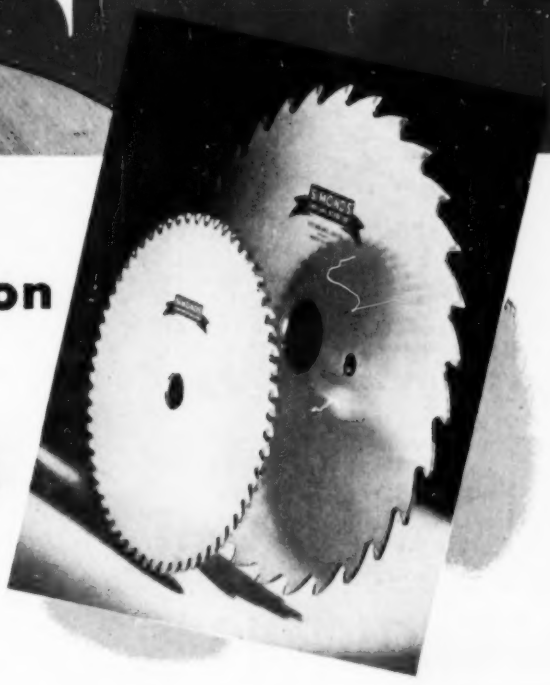

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Standard-size saws are available from stock through your Industrial Supply Distributor. Call him today.

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Just off the press, this new catalog includes complete listings, specifications and recommendations covering Simonds complete line of Carbide Tipped Wood Cutting Saws. Address the nearest Simonds Factory Branch.

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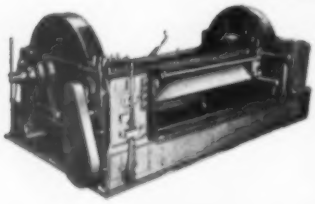
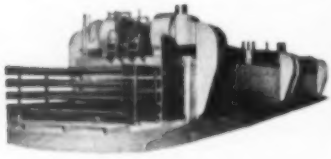
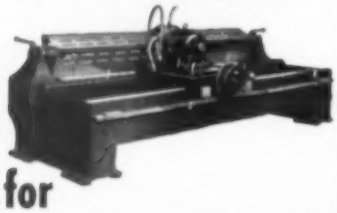


...for CUTTING

...for CLIPPING



...for DRYING



...for KNIFE CONDITIONING

These prime logs have passed at least three inspection gradings before arriving at this pond. For the final stages or conversion into veneer, skillful handling through sound equipment is necessary. For many years an impressive percentage of veneer manufacturers have turned consistently to Coe for complete manufacturing equipment to cut, clip, and dry veneer produced from logs such as these.

The COE MFG. Company
PAINESVILLE
OHIO

316 Bank St.

WOOD and wood products

Volume 58, No. 1

JANUARY, 1953

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(advertisement)

Mauk Talk

Happy New Year and you know a resolution will just go in one year and out the other.

• • •

America is still the country where a man can start out digging ditches and end up behind a desk — if he doesn't mind the financial sacrifice.

• • •

The woman explained to the doctor that her husband's habit of talking in his sleep was just making her a nervous wreck — because he didn't talk distinctly!

• • •

When you're specific, we're terrific. No foolin', we're good.

The MAUK Lumber Co. strives to fill orders to the proverbial T. Tell us exactly what your lumber needs are — and uses too, and you'll be more than satisfied with your order of lumber for industrial uses from the MAUK Lumber Co.

• • •

Simple Celia says the third day of a reducing diet is not so bad — by that time you're off it.

• • •

The application stated the man's name as Jones, his age as forty five and that he'd worked fifty years at his last place of employment. The new boss looked at Jones and said, "Your name may be Jones, you may be forty five years old, but then how in blazes could you have worked fifty years at your last job?"

Jones replied, "Got in a lot of overtime."

• • •

And then there was the timid wolf who drank a gallon of Four Roses so he could feel rosie from top to toe.

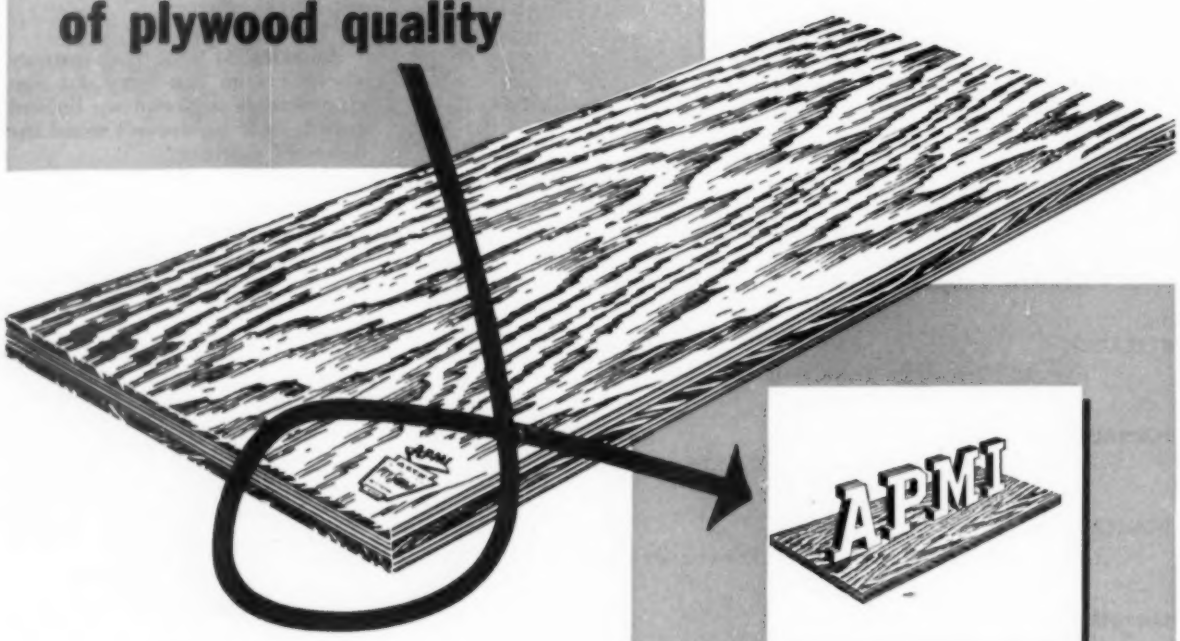
• • •

The New Year's alcoholiday reminds us, blessed are the pure in spirits because there's danger in mixing your drinks.

MAUK Seattle Lumber Co.
Seattle 5, Washington
The C. A. Mauk Lumber Co.
Toledo, Ohio

TRADEMARKED

as well as grademarked ...your double guarantee of plywood quality



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There is a type, size and grade of APMI plywood (exterior and interior) for every building need:

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APMI products are sold from centrally located sales warehouses, sold by experienced plywood men. Your inquiries are invited.

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JANUARY, 1953

WOOD and wood products

VOL. 58, NO. 1

Industry News and Trends

FURNITURE

Cautious Optimism Prevails

The furniture and home furnishings industries, winding up 1952 in a race to meet or beat 1951 figures, looks into most of 1953 with cautious optimism. This is the viewpoint reflected at the American Furniture Mart, 666 Lake Shore Drive, Chicago. The winter market dates are January 5-16, 1953.

Furniture manufacturers, who finished the first quarter of 1952 with sales 20 percent under 1951, began a climb which found the year to date 12 percent behind at mid-year, 10 percent behind in August, 8 percent behind in September, but only two percent behind in mid-November. This picture reflects sales rather than profits, which will dip sharply under the 1950 mark, due to price sacrifices early in 1952, and to freight rates which have tripled since 1946, which have increased 120 percent since 1948 and gone up to a ratio of 9.3 percent of sales, from 4.6 percent over a three year period—in less than carload shipments.

Inventories, which had warehouses bulging during the first quarter of 1952, had been cut down to size, and were filled up again for the busy holiday season. Whether or not they had over-expanded was being debated by the industry. Stocks which were off 15 or 20 percent in the first part of 1952 are now only about five percent under late Fall a year ago.

Record high factory output, high employment—(with consequent low unemployment)—higher interest rates, and the reaching of a peak in defense spending and production, point to good business through most of 1953 in the opinion of most analysts. Some business forecasters believe 1954 will be a period to separate the men from the boys; many believe that Federal regulatory agencies will sing a tune more in harmony with business thinking.

The strong finish for 1952 should carry well over into 1953, most are agreed, and if the promotional push which has been notable in recent months continues, many a firm should have a sales record and a balance sheet that makes good reading.

Teco Laboratory Tour

Directors and about 50 other wood industry representatives toured Timber Engineering Co.'s research laboratory, Washington, D. C., as a feature of recent annual meetings of NLMA and Teco. Luncheon and Teco director's annual meeting followed in laboratory. Facilities, equipment and current projects were displayed and explained, including new all-wood truck body, preservative treatment of stored lumber, full-scale tests of timber trusses, rafters and connectors, effects of Fersolin, the soil improver, on vegetation, tests on ship timbers, testing of finishes, others. Here Teco technologist T. G. Gill, explains exposure tests on cross-tie coatings to Omar Hilton, J. F. Koellisch, J. M. Brown, A. J. Glassow, Baker Fullerton, John B. Veach and August J. Stange.

PLYWOOD

Sales Rise—Profits Lag

Pacific Northwest plywood manufacturers are experiencing what might be termed a pseudo prosperity. They are selling their products at record and near-record rates, but are making little profit. The situation was the subject of a lengthy report in the November 26 *Wall Street Journal*. Here are some of the highlights:

Consumers are buying plywood at a fast rate, but they are not taking it quite so fast as the greatly expanded plywood plants are turning it out. Prices have cracked, following a pay raise, and profit margins have in many instances faded to nearly nothing. While sales remain healthy, profits are off as much as 50% from a year ago.

Some of the many worker-owned plants have recently gone from a 48-hour week to a 40-hour one. A spokesman for one of the larger firms said the industry is suffering from a "profit squeeze". He pointed out that labor costs went up 12½ cents an hour last summer. That boosted production costs by more than 15%. But there were no offsetting price hikes. Instead, prices have recently been slashed as much as 10%.

Price cuts made late in October as the result of production-above-sales came as no surprise. For some weeks, plywood mills had been handing out fancy discounts as they scrambled for new business to keep up with booming production. These, of course, were price cuts in effect, but the reductions

in list prices were industry-wide while not all companies had been granting discounts.

To sell the industry's high production, the major tactic now in use is the plywood association's $100,000 monthly sales promotion program. It's featuring page ads in national magazines, plus promotion and advertising tie-ups with the nation's retail lumber dealers.

But it is clear that neither this program nor price cuts can solve the problem for every mill. Looks like the time has come for some aggressive advertising and selling by more of the individual producers, especially in the industrial markets.

LUMBER

Glued Hardwood Specifications

Standard specifications for the design and fabrication of hardwood glued laminated lumber for structural, marine and vehicular uses are contained in a booklet now available from the Forest Products Laboratory, Madison 5, Wis.

The specifications, including the working stresses, conform to the recommendations of the Laboratory, Southern Hardwood Producers, Inc., Appalachian Hardwood Manufacturers, Inc., and the Northern Hemlock & Hardwood Manufacturers Association.

They are based on extensive research and technical experience, the basic data for which was provided by representatives of the lumber, adhesive, inspection and fabricating industries who participated in the development of, and concurred in, the specifications.

Orders Below Production

Lumber shipments of 494 mills reporting to the National Lumber Trade Barometer were 6.1% below production for the week ending November 22, 1952. In the same week new orders of these mills were 1.0% below production. Unfilled orders of the reporting mills amounted to 33% of stocks. For the reporting softwood mills unfilled orders were equivalent to 19 days' production at the current rate, and gross stocks were equivalent to 56 days' production.

For the year-to-date, shipments of reporting identical mills were 3.9% above production; orders were 2.1% above production.

Compared to the average corresponding week of 1935-39, production of reporting mills was 86.1% above; shipments were 83.5% above; new orders were 77.3% above. Compared to the corresponding week in 1951, production of reporting mills was 23.5% above; shipments were 16.1% above; and new orders were 36.2% above.

WONDER WOOD

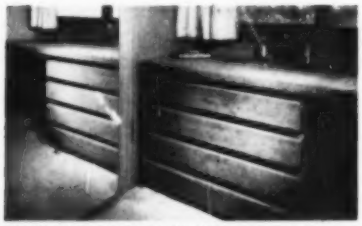
from California . . .

IN THE wood working industry, few woods have so much to offer as California Redwood. The big mill-work manufacturer and the specialty woodworker alike can put Redwood's unique properties to work for profit.

FOUNDRY PATTERN for a turbine housing, carved from workable California Redwood. The low volumetric shrinkage and unsurpassed dimensional stability of Redwood make it ideal for exacting jobs.

REDWOOD LUGGAGE BOX FRAMES, ready for leather covering. Its light weight and strength have won Redwood a permanent place on the luggage manufacturers' assembly line.

Strength, light weight, workability, durability, dimensional stability, insulating value—in fact, all the desirable qualities of a good commercial wood are found in abundance in Redwood.



BUILT-IN FURNITURE in the dressing room of this modern home illustrates Redwood's gluing properties and beauty of grain and color.

The photos on this page give a good indication of the tremendous potentialities of Redwood in the wood working industry. For fuller information on specific uses, write the California Redwood Association, 576 Sacramento Street, San Francisco 11, Calif.

This Association includes twelve of the nation's leading Redwood lumber mills, all in Northern California: Willits Redwood Products Co., Arcata Redwood Co., Coastal Plywood & Timber Co., Eureka Redwood Lumber Co., Hammond Lumber Co., Holmes Eureka Lumber Co., Northern Redwood Lumber Co., Pacific Lumber Co., Rockport Redwood Co., Simpson Logging Co., Union Lumber Co., Warm Springs Redwood Co.

FORESTRY

Farm Forestry Proves Profitable

In 1937 the poorest piece of timberland on the Crossett Experimental Forest in Louisiana was selected for management as a farm forest. This tract of 34 acres was selected because much of the area was either open land or contained low-grade hardwoods—due to heavy cutting and repeated uncontrolled fires. Little or no pine reproduction was present.

An objective of the study was to see how long a period would be required to build the stand into a highly productive condition. This was accomplished in a period of 13 years. Over 90 percent of the ground area is now stocked to pine, and growth of trees of all sizes is now more than 1¼ cords per acre per year. Growth of trees of saw-timber size is now nearly 400 board feet (Doyle scale) per acre per year.

It is now 15 years since this tract has been under management. During this period 191,242 board feet of logs, 323 cords of pulpwood, 228 cords of fuel wood, and 418 fence posts have been cut. These products had a stumpage value of $4,179, a roadside

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. . . . . for Accurate fast production

White Furniture Company of Mebane, North Carolina, uses Mattison Moulders and Mattison No. 202 Rippers in the production of parts for their line of high grade bedroom and dining room furniture. Practically all of the parts are run through their Mattison Moulder and include all kinds of mouldings and all shapes of cuts. These pieces come through uniformly accurate and insure proper fitting when assembled.

The Mattison 202 Rippers are giving a good account of themselves on all glued up stock. The joints are direct from the 202s on solid exposed joints as well as on their core stock. They now have five 202s on the line.

It will pay you to get all the facts on these two machines because of what they can do for you.

Mattison Machine Works, Rockford, Illinois
Please send for Circulars on Rip Saws . . . Moulders . . . Turning Lathes . . . Sanders . . . Automatic Stroke . . . Hand Lever . . . Hand Block . . . Variety . . . Edge . . .

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ONLY 20 MIN. CLAMPING TIME

for joint assembly operations that normally require 6 to 8 hours.

WOOD-LOK* Glue will shorten your assembly lines... free working floor space . . . speed production. It is the only type of resin wood glue that can be handled and machined after a clamping time of 20 to 30 minutes. It sets with a speed comparable with hot animal glue.

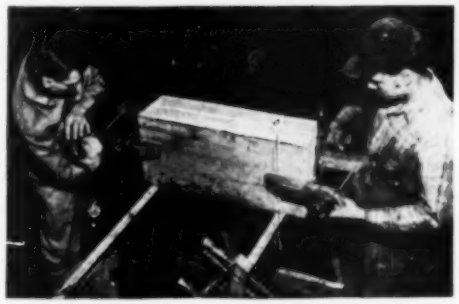
WOOD-LOK* is a cold run, liquid glue—*ready for use!* Nothing has to be added, soaked or heated. Its characteristics never change. It permits continuous production—with no time lost to mix fresh glue or replace constantly hardening glue.

WOOD-LOK* glues are specifically blended to suit your job. Their colors range from uniformly controlled pure white—*which dries colorless and leaves no glue line*—to darker shades for special uses.

WOOD-LOK* Glue was designed for Joint Assembly Operations where limited clamping time or rub joints are necessary to speed production. Or where an economically applied, fast setting durable bond is required for wood working.

WOOD-LOK* is available—NOW! For complete information address: 270 Madison Ave., New York 16; 3641 So. Washtenaw Ave., Chicago 32; 735 Battery St., San Francisco 11; and other principal cities. In Canada: National Adhesives (Canada) Ltd., Toronto and Montreal. In England: National Adhesives, Ltd., Slough.

(*Reg. applied for)



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And remember, Belcobalsa Core Stock reduces the weight of your panels because of its extra-light density, makes them water-proof because of its inertness and stability.

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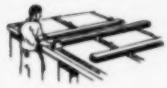

HANDLING & SORTING

KILN DRYING

RESAWING

RIPPING

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CERTIFIED KILN DRIED BELCOBALSA

BALSA ECUADOR LUMBER CORPORATION

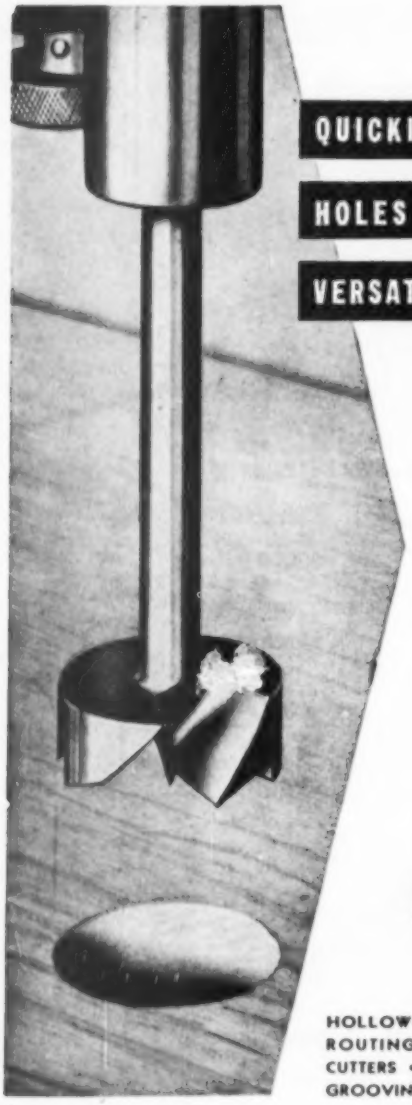
value of $7,372, and a market value of $10,565. Moreover, the timber stand has improved and the forest today is in far better condition than when cutting started.

These results are part of a demonstration of the possibilities of managing second-growth loblolly and shortleaf pine farm woodlands. The area has been cut annually under sound forestry practices that removed only the products which should be harvested. Each year the total cut has approximately equaled the growth.

Managed Forestry Gains

Latest figures released by the Wisconsin Forest Industries, Box 1040, Oshkosh, Wis., show 628,127 acres of private certified industrial forest land on which has been planted 47,322,000 trees.

These lands in tracts of 1,000 acres or more are maintained for permanent tree growth under standards approved by the Wisconsin Conservation Department. Of this acreage about 130,000 acres is held by sawmills, the balance is owned by pulp and paper companies. At this time a forest inventory is being conducted jointly by industry, the counties and the Wisconsin Conservation Department to determine the actual volume of forest timber located on some 20 million acres of private and public land.



QUICKLY BORE SMOOTH HOLES UP TO 3" WITH THIS VERSATILE MULTI-SPUR BIT

A fast, smooth-boring bit for those special jobs beyond the scope of the usual machine bit. Bores any arc of a circle on an edge of a piece of stock. Operates well in either soft or hard woods and is often preferred for end-grain work. Smoothly bores veneered stock without tearing and will bore at an angle, overlapping, or at close centers without splitting stock. Stocked in sizes ¼ to 3". Write for facts. Greenlee Tool Co., 2151 Herbert Avenue, Rockford, Illinois.

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GROOVING TOOLS FOR TIMBER CONSTRUCTIO'

Standards for Wood Quality

At a recent meeting at Purdue University, Lafayette, Ind., about 30 research workers in hardwood forestry discussed the use of indices for measuring log and tree quality. All sections of the hardwood-producing areas of the eastern United States were represented.

The objective of the meeting was to arrive at standard bases for the computation of hardwood quality indices. This objective was achieved. Full agreement, acceptable to all representatives in attendance, was reached on the following standards:

1. The base or reference lumber grade is Number One Common.
2. The base or reference lumber thickness is one-inch (4/4).
3. Until further notice, grade price relatives will be calculated (in any marketing area) from average lumber prices existing during the base period of five years, 1947-1951.

The conference was sponsored jointly by the Purdue University Agricultural Experiment Station, the Society of American Foresters, and the Forest Products Research Society. Proceedings of the conference, including all papers and discussions, will be published in the near future.

See Drop in Forest Fires

Figures have just been compiled on the Forest fire situation in 1951. The number of fires was held down to 164,090, representing a drop of 21% in number from the previous year. The area burned by forest fires was down to 10,781,039 acres. The number of fires and the area burned represent a new peacetime low. This record is all the more impressive when one realizes that the public use of our forests and outdoor recreational areas has increased by 50% during the 10-year period.

TIMBER

Beetle Destroys Oregon Timber

A new pest, the Douglas fir beetle, has teamed up with a vast wind storm to wreak havoc on two million acres of Oregon's virgin forests, resulting in the destruction of more than 10 billion board feet of prime timber.

Much of the blow-down timber has been infested by the beetle. The problem *now*, according to W. D. Hagenstein, chairman of a recently-formed sub-committee of the Northwest Forest Pest Action Committee, 1410 S. W. Morrison St., Portland 5, Ore., is to salvage as much of the down and beetle-infested timber as possible in the quickest possible time. Hagenstein

MODERN or TRADITIONAL...

Count on GAMBLE PART-*icipation*

THIS season's double trend toward modern traditional is straining the production lines of furniture manufacturers everywhere. But . . . wise manufacturers are comfortably meeting the style demands by letting GAMBLE BROTHERS furnish the fine wood parts they need.

GAMBLE BROTHERS wood parts (shapes . . . core stock . . . plastic-faced materials) are designed to your specifications, fully or semi-machined, solid or laminated. Get exactly what you want, as you need it.

BE there first with what your retail dealer needs for his customers. Enlarge your production capacity without delay and without needless expensive investment in new equipment by calling on GAMBLE BROTHERS. For more than fifty years, GAMBLE BROTHERS has successfully solved special wood stock problems for manufacture of fine furniture and many other wood products. Their knowledge of wood engineering and production can help you.

WRITE TODAY!

Engineered Wood Parts
in Southern and Appalachian Hardwoods,
Walnut, or Mahogany.

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Offices and Main Plant:
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declared there is no known means of checking the beetle by spraying.

Another threat to western Oregon forests is fire danger. Blowdown is exceptionally heavy along ridges where the wind had full sweep, and here is where bad fires could get underway, posing a threat to surrounding green timber. Loggers and landowners have been urged to undertake a vast salvage program. Much of the timber will deteriorate once the beetles have made their attack and should be taken out as quickly as roads can be built. Salvage of this timber appears to be the Number One task of Oregon Douglas fir owners in the next few years.

Harvesting Damaged Timber

Spokesmen for the nation's lumbermen demanded recently that the government keep hands off private timber management and build more roads to speed the harvesting of overaged and damaged federal timber. These were among the highlights of resolutions adopted by Directors of the National Lumber Manufacturers Association to climax their 1952 annual meeting in Washington, D. C.

The lumber leaders denounced a recent proposal of the President's Materials Policy Commission which called for federal-state controls on private timber cutting. NLMA insisted that any public regulation of private timber cutting should be left entirely to the states.

The association's 54-man board of directors also urged that the government spend $30,000,000 annually over the next five years for construction of new timber access roads in federal forests. This amount, approximately triple present outlays, was recommended to open up for harvest virgin stands of federal timber which have been deteriorating in recent years.

The lumber spokesmen added that the government should finance timber road construction only where private building is not feasible and that each project should be subject to a public hearing.

Finer finishing — sanding, smoothing, polishing — for all types of wood products.

ABRASIVE PRODUCTS, INC.
553 Pearl Street **South Braintree 85, Massachusetts**

SAFETY

Safety Code for Wood Ladders

A safety code prescribing rules and requirements for the construction, care, and use of the common types of portable wood ladders (A14.1-1952) has just been approved by the American Standards Association, 70 E. 45th St., New York, N. Y. It is intended to insure safety under normal conditions of usage.

Designed for the voluntary use of ladder manufacturers, these specifications will also serve as the basis of purchase requirements on the part of the many types of establishments that use ladders.

EDUCATION

Hardwood Inspection Courses

The 1953 educational program conducted by the National Hardwood Lumber Association is being accelerated by field representatives who are rapidly lining up advanced dates for the week-long short courses in hardwood lumber inspection and measurement.

These instructional classes commonly known as "Short Courses" customarily occupy five consecutive days. The first two are spent in a thorough study and explanation of the rules as stated in the N.H.L.A. Rules Book and the next three days are devoted to actual grading of lumber by the class.

"The value of having inspectors, yardmen, sawyers, salesmen, edgermen and other employees well versed in the Rules will be quickly obvious to all mill owners," Secretary-Manager J. L. Muller stated. "By making each man 'rules conscious', the end result will be a more carefully manufactured product, more profitable yield from the log and a business-like

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TO STABILIZE

THE IMPROVED WAY TO TREAT WOOD PRODUCTS

STOP WARPING

Nelsonized Wood resists warping when exposed to high humidity.

STOP SWELLING

Nelsonizing retards moisture pick-up. No more swollen drawers that can't be opened!

STOP STICKING

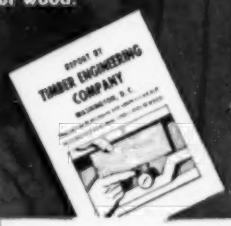
Nelsonizing's high anti-shrink efficiency means cabinet doors shut easily and stay shut!

Nelsonized-treated ponderosa pine, red oak and sap gum resisted swelling and shrinking in rigidly controlled humidity cabinet and outdoor weather tests better than untreated woods or woods treated with competitive products.

Tested Nelsonite chemical formulae are *proved* highly effective in the *dimensional stabilization* of wood products for indoor or outdoor end use.

Nelsonite has been laboratory tested and approved by Timber Engineering Co. (report sent on request), and is recognized by National Hardwood Lumber Manufacturers Association, Southern Furniture Manufacturers Association, and the Wood Office Furniture Institute. Nelsonite meets basic U.S. Government specifications on wood stabilizers and preservatives.

There is a Nelsonite formula specially compounded to attain the specific results desired on any wood or for any end use of wood.



"NELSONITE GAVE BETTER RESULTS IN CONTROLLING SWELL AND SHRINK Than Competitive Products!"

Report of Independent Laboratory Test

MAIL COUPON TODAY FOR SAMPLE

Nelsonite Chemical Products Inc.
900 Monroe Avenue, N.W., Grand Rapids 2, Michigan

Gentlemen:

We are interested in Nelsonizing the following wood and wood product

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Please send us sample to meet our individual specifications, at no charge.

Company_____

Address_____

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NELSONITE CHEMICAL PRODUCTS INC. • GRAND RAPIDS 4, MICHIGAN

VENEERED PANELS IN ONE OPERATION!

GET HIGHER PRODUCTION AND ECONOMICAL OPERATION

with a V B hot press

The automatic hydraulic Side and End Pressure Attachment features of the Single (1) and Double (2) Opening "VB" Hot Press enables the user to manufacture veneered panels in one operation. ★

The pressure attachments, as shown in the above photo, are fully automatic and operate in synchronization with the curing cycle. At a touch of the starting button the core stock, crossbands, face and back of the panel are made up and glued into finished panels. This type of manufacturing operation cuts the material costs and speeds up production. ★

Investigate this and the many other advantages of the "VB" Hot Presses for your plant or shop today. ***Write for full details.*** ★

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plywood

From the world-famous forest resources of Finland, imported all-birch plywood—sizes up to 4' x 6', all thicknesses...cut to buyer's specifications. Also molded plywood chair seats and backs in standard sizes and shapes and to your specification; all-birch 3/4" 13-ply laminates for cabinet doors, table tops, etc.; lumber core for table tops; door panels of birch plywood (1/8" 3-ply).

Dependable deliveries from Finland's oldest plywood source. Quotations submitted —your inquiries invited.

FINWOOD
INDUSTRIES INC.

15 Exchange Place Jersey City 2, N. J.

control that encourages customer confidence and good will."

Firms desiring to sponsor a Short Course are invited to write the National Hardwood Lumber Association, 59 East Van Buren St., Chicago 5, Ill.

CONSTRUCTION

High Volume Expected in 1953

It is estimated that construction will reach a total of $32.3 billion for 1952—in the range of $32 billion to $32.5 billion, according to Robinson Newcomb, Office of Defense Mobilization. It looks as if the volume for 1953 will approximate $33 billion, with a probable range of $32 billion to $34 billion.

This estimate is based on the view that 1953 will be a prosperous year, though tending to level off in the second half. In other words, economic difficulties are not expected before the end of 1953 unless declines in security expenditures and in inventory accumulation produce a quick reversal. Should the economy hold up well through the first three quarters, commitments for construction will have gone so far that it will be difficult to reduce them appreciably. Should fears appear in the third quarter, even though the economy is going at a good clip, enough commitments could be cancelled to affect fourth quarter volume to a limited degree.

Long Range Housing Program

A housing program calling for at least 1,000,000 new homes annually for the next 4 years was suggested by Congressman Jesse P. Wolcott of Michigan at a recent meeting of the National Association of Home Builders of the United States. The Congressman assured the group that when this program has been worked out to the satisfaction of all concerned, there will be plenty of assistance from the government. "I think you have reason to assume", he said, "that during the next 4 years in which your program should be in effect, there is going to be little or no effort on the part of the Federal Government to interfere with your activities".

RESEARCH

10-Point Program Proposed

One of the major, unsolved problems facing the lumber and woodworking industries is in reversing the downward curve of lumber consumption that has been dropping steadily for 45 years. In 1907, with a population of 92 million, the per capita con-

sumption was 500 board feet. Today, the per capita is down to 249 feet, with a population of 154 million. In other words, 46 percent more people are using 17 percent less lumber.

In the light of these facts, it must be clear that lumber's retention of a reasonable share of present markets and a greater portion of new markets will depend, to a large extent, on technical developments in the wood products industries in the next few years.

A 10 point research program for the wood and allied industries is included in a comprehensive, 32-page booklet entitled "Advancements in Wood Research and Timber Engineering", prepared by the Timber Engineering Co., 1319 Eighteenth St., N. W., Washington 6, D. C. In addition to outlining and illustrating some of the research, testing and consultation services of the TECO laboratory, the booklet points out that the industry can take many roads to increase its markets.

Many worthwhile projects, needing action, fall, generally, in these three fields: 1. Utilization of mill and forest residues. 2. Product development of lumber items. 3. Increased efficiency at the sawmills and other manufacturing plants.

A few of the outstanding projects that could be undertaken by the lumber industry for immediate relief of some of its problems are listed, not necessarily in the order of their importance, as follows:

1. Development of new processes for pulping waste wood from forests, sawmills and wood products plants.

2. Producing chemicals, such as sugar, glycols, phenols, automotive and industrial fuels.

3. Extending work on Fersolin soil improver process.

4. Development of portable equipmest for use in the woods in processing wood residues into usable forms.

5. Development of new laminating processes and improved adhesives, clamping devices and handling machinery.

6. Development of realistic data on the strength of laminated products.

7. Economical treating methods to increase fire resistance and dimensional stabiliation, and reduce decay and insect damage.

8. Development of non-destructive testing methods for lumber and wood products.

9. Development of new types of office furniture.

10. Development of new, high speed equipment, such as saws and other cutting tools, and dry kiln processes.

Annual cost of conducting research in all of these fields would be from $250,000 to $500,000. Some of the projects could be completed in three to five years; others would require more time.

Vacuum Treating of Millwork

For the purpose of studying the vacuum method of treating millwork to safeguard against decay, and to minimize swelling and shrinking, the Preservative Standards Advisory Committee of the National Woodwork Manufacturers Association, 332 S. Michigan Ave., Chicago, Ill., recently met in Spokane, Wash.

The purpose of the meeting was to recommend a standard treatment for the vacuum process which will insure adequate penetration and retention of the treating solution. Experimental test runs by this process indicate that the vacuum process has greater flexibility than the conventional 3-minute dip, because of the force exerted by normal atmospheric pressure when the initial vacuum is broken after it has partially exhausted the air from the pores of the wood. A final vacuum then withdraws the surplus solution from the wood surface and leaves it relatively dry. In this way the delay for draining and volatilization required by the 3-minute dip method is eliminated

In the installation shown, the new 20KW THERMATRON Generator is used in conjunction with a Weldon press, which is completely shielded and guaranteed to meet FCC requirements. A new automatic tuning device delivers to the load the maximum efficiency of the generator

REDUCES PRODUCTION TIME BY 33⅓% AT SENSENICH CORPORATION PLANT!

They agree at the Sensenich Corporation, Lancaster, Pa., that their new 20 KW THERMATRON and batch-type press installation is really the last word for high production edge bonding. THERMATRON'S large power capacity and automatic controls quickly proved themselves in accommodating the wide variety of loads run at the Sensenich plant.

This modern high frequency generator—product of years of Radio Receptor research and development—has indicator lights and meter readings to tell at a glance the exact status of the material in work. Power and tuning automatically adjust to load conditions during the entire cycle . . . and of course all the latest protective devices are included.

THERMATRON engineers are ready to make suggestions regarding your wood-gluing problems . . . Write us now, and request our new brochure No. W-12.

Thermatron division
RADIO RECEPTOR COMPANY, Inc.
Since 1922 in Radio and Electronics
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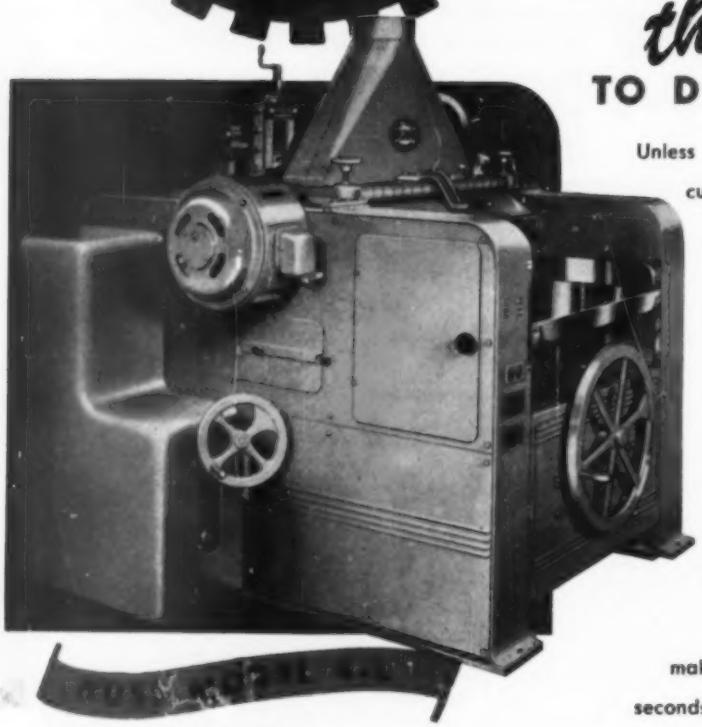
IT'S USUALLY FAR CHEAPER to OWN BUSS CABINET PLANERS than TO DO WITHOUT THEM!



Buss Model 4L, 24" to 30" x 8" Single Surface Cabinet Planer. The line contains single and double surface types to suit every production set-up, including the surfacing of rough lumber.

Unless yours is a modern, up-to-the-minute planer, a current BUSS Cabinet Planer in your shop would quickly demonstrate savings that would repay its cost many times over in a relatively short time. In the first place, it would give you excellent finish planing at three to four times the rate of speed of older planers. That means greatly increased production—of a quality that cuts down on the cost of following operations. Secondly, you would find that set-up and change-over time would be cut as much as 60 to 70% by our exclusive, patented lever-action controls which make absolutely accurate adjustments a matter of seconds rather than long and tedious operations of varying accuracy. Third, you would find that knife grinding and jointing is reduced to a small fraction of the time required on the older planers. This is due not only to the convenience of the BUSS built-in equipment, but the accuracy with which the knives may be ground so that each does its proportion of the cutting. These are only part of the features that make it far cheaper to own modern BUSS Planers than to do without them. Why not investigate. Write for bulletins.

PLANER SPECIALISTS EXCLUSIVELY

244 EIGHTH ST. HOLLAND, MICHIGAN

BUSS
SINCE 1862
MACHINE WORKS

Time to Fight for Wood's Markets

Management men of the wood industries will be inspired to do some serious thinking upon reading Henry Willins' challenging article in this issue of WOOD AND WOOD PRODUCTS. It's the story of the fight of the organized oak flooring industry to protect and build up its market in the face of heavy and determined competition. The encouraging results of the program are particularly worth noting.

What oak flooring is doing so well, other wood industries can do with comparable results. In fact, some are doing a similar job, and we shall tell you about them in succeeding issues. But it's unfortunate that so much of this effort is delayed so long—in some cases to the point where competitive "substitutes" are allowed to make such serious inroads that the task of arresting the trend away from wood becomes a long, costly, uphill battle and at best salvages only a part of the lost market.

Recognizing that some progress has been made, WOOD AND WOOD PRODUCTS believes it is time all wood industries took a good, square look at themselves. This must be done, not only on an industry-wide level but, as one alert furniture manufacturer put it recently, by individual companies so that their own house is put in order to do its share in a co-ordinated industry fight for the market.

The time to tackle this job is *now*—not after some "substitute" industry has moved in and taken over a third, or half, or more of its wood competitor's market. Done in time, it's usually less costly than waiting until your back is up against the wall. You don't wait till you're thirsty to dig a well!

Success will depend upon many factors—among them, the extent of our research and planning, our willingness to modernize plant and equipment, our ability to find better, more efficient production methods, better ways of training and utilizing manpower, incentive plans that work. It calls for a sound knowledge of costs and how to control them, lest wood is priced out of the market. Waste must be reduced and the trend toward more complete utilization of the tree accelerated. Nor can we ignore the need for improvements in product design and finishing, for better packaging methods and, in fact, for new product developments.

We have to be constantly on the alert and flexible enough in both our viewpoint and our operations to meet any contingency. Individual companies and their particular industry groups must do a more aggressive and constructive job of selling wood, be more consistent in their advertising, promotion, public and employee relations.

WOOD AND WOOD PRODUCTS is dedicated to a continuing program of editorial support for the aims and objectives cited here. We contribute materially toward their attainment through regular dissemination of practical ideas and information on all subjects mentioned, and more. This issue's contents are typical.

We all have a stake in wood's success, and it is important to realize that what hurts one part of the wood industries may eventually harm another. We've got to believe in wood, to tell its virtues with pride. And, as Henry Willins suggests, if we believe in wood and want others to buy and use wood products, we must buy and use wood products ourselves.

What do *you* think?

(Comments, and inquiries regarding distribution of reprints of this message to employees and others, are invited.)

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● When you want the best glue fast — call Reichhold. There's a plant near you. RCI plants are located in Seattle, Washington... Azusa and South San Francisco, California . . . Tuscaloosa, Alabama . . . Charlotte, North Carolina . . . Elizabeth, New Jersey . . . Detroit, Michigan . . . Argo, Illinois . . . Port Moody, British Columbia . . . Ste. Therese, Quebec. So never compromise with speed or quality. Call Reichhold and benefit from prompt, attentive service plus a nation-wide technical staff intimately acquainted with any problem you may face.

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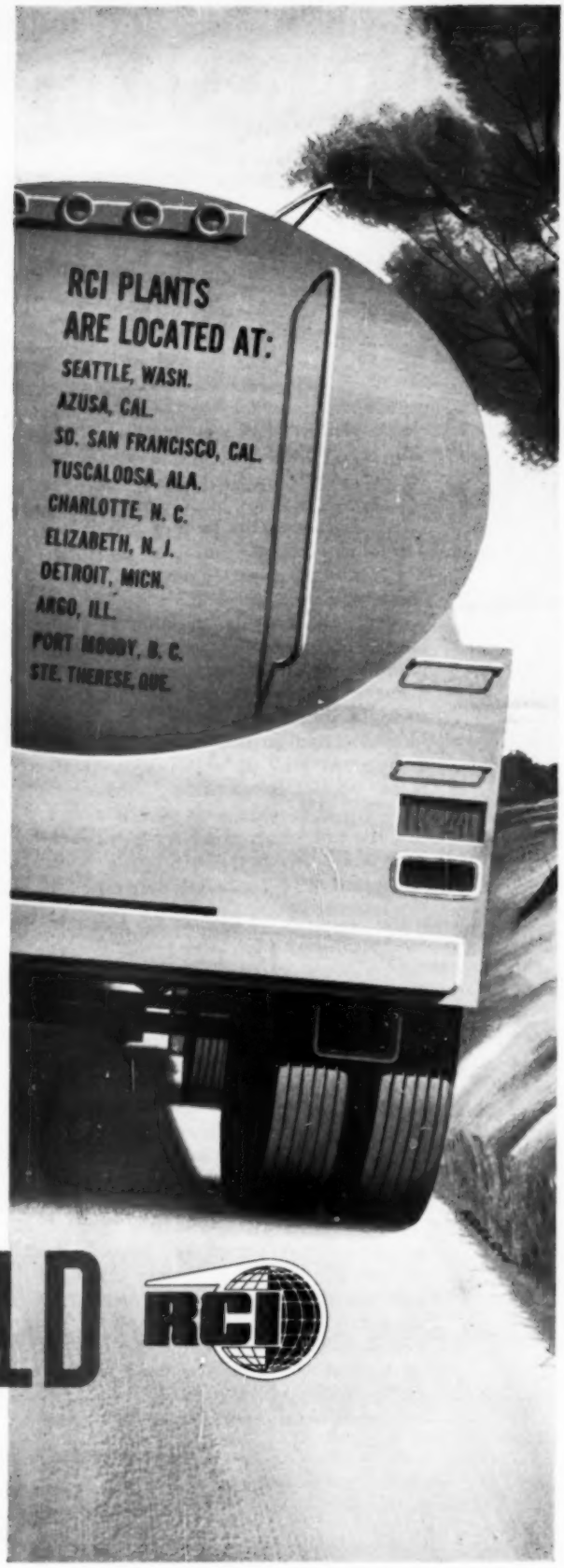
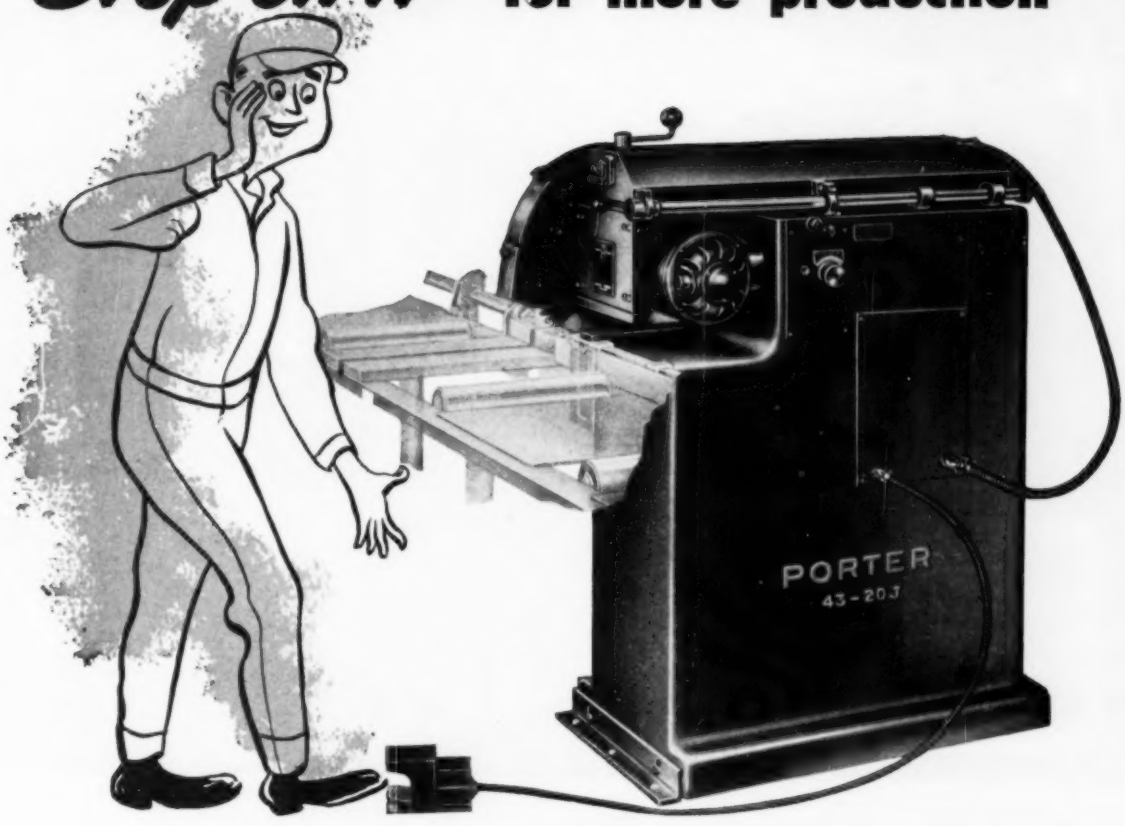
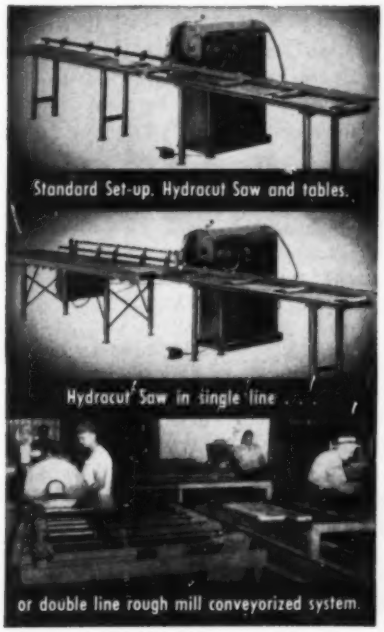
Phenol Glycerine • Phthalic Anhydride • Maleic Anhydride • Sodium Sulfate • Sodium Sulfite



Step on it for more production



PORTER 43-20J Automatic Hydracut Saw



Foot Pedal Control Ends Operator Fatigue

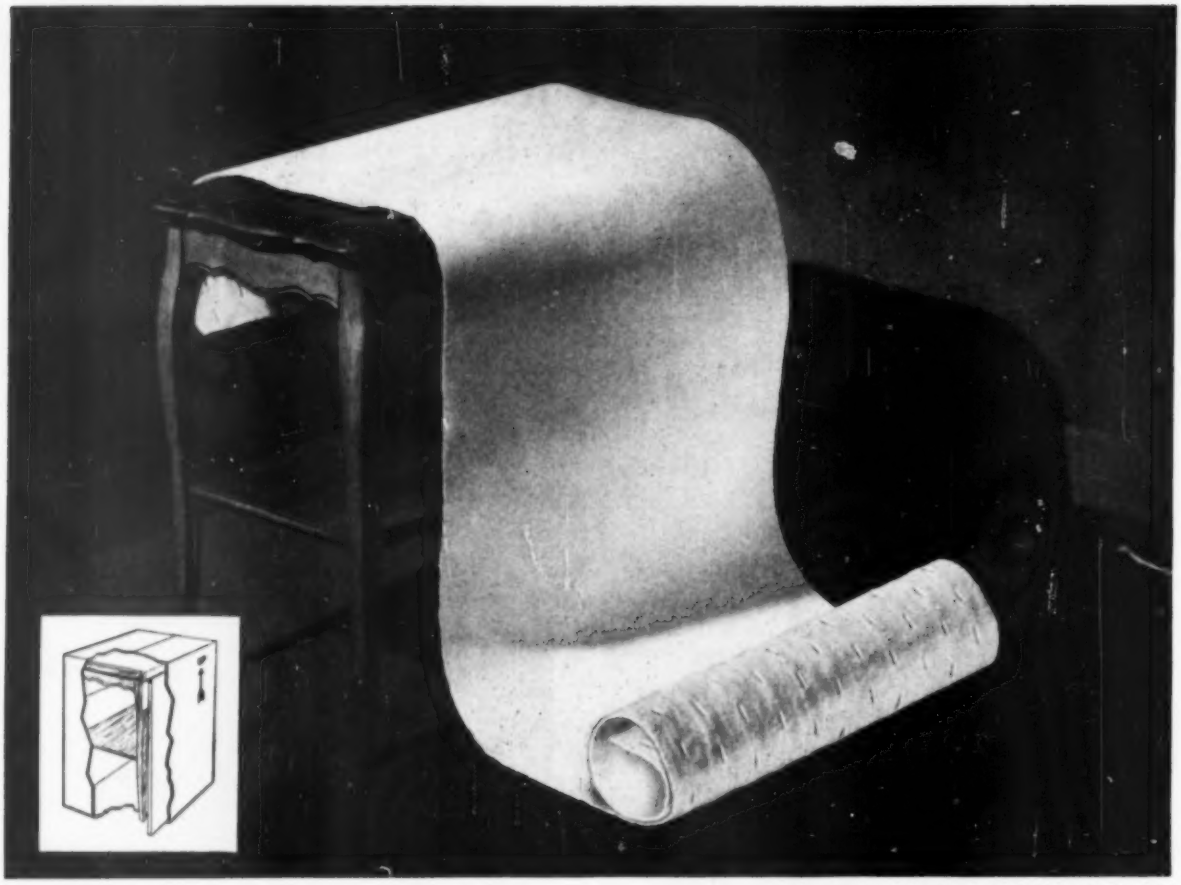
The Porter 43-20J Automatic Hydracut Saw saves hours of labor . . . enables any cutting room operator, regardless of age, to cut more lumber per day by eliminating tiring hand operation. Operator simply positions the lumber against the adjustable cut-off stops . . . and presses the electrically operated foot control. The saw blade, mounted on a hydraulically operated carriage, *automatically* moves forward to make the cut and *automatically* returns. Fatigue from manual "push-pull" operation is gone.

Stroke length is quickly adjusted by a convenient lever. Cutting speeds range from 0 to 45 cuts per minute.

The new Porter Bulletin 43-20J-1 fully explains the Automatic Hydracut Saw. Send for your copy today.

Dividend Designed by **PORTER**

C. O. PORTER MACHINERY CO.
660 Front St., N. W. Grand Rapids, Michigan



Surface protection of cherry novelty table (Ry. Freight Class. 1-E)

Custom Protection—prevents shipping damage

as no other packaging method known!

A single scratch or pressure-mark can effectively destroy the beauty of any fine new piece of furniture . . . and it happens so *often* when inadequate packaging methods are used! Yet many companies have found it costs no more to prevent surface damage in transit with a modern interior packaging material like Kimberly-Clark KIMPAK®. Soft, smooth, sparkling clean, chemically neutral and completely non-abrasive—KIMPAK won't stain, burnish, scratch or pressure-mark any finish. KIMPAK provides *custom protection* for case goods, overstuffed furniture and chairs. It conforms to any shape, fits snugly and prevents shipping within the outer container.

KIMPAK is available in rolls, sheets, or pads, in various thicknesses, in dimensions to suit your convenience, backed or unbacked. It's easy to apply, pleasant to handle, and economical, too. You'll find, like the Superior Furniture Company, that KIMPAK prevents shipping damage as no other packaging method known. For complete information, write Dept. G-13, Kimberly-Clark Corporation, Neenah, Wisconsin.

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A Product of **Kimberly-Clark**

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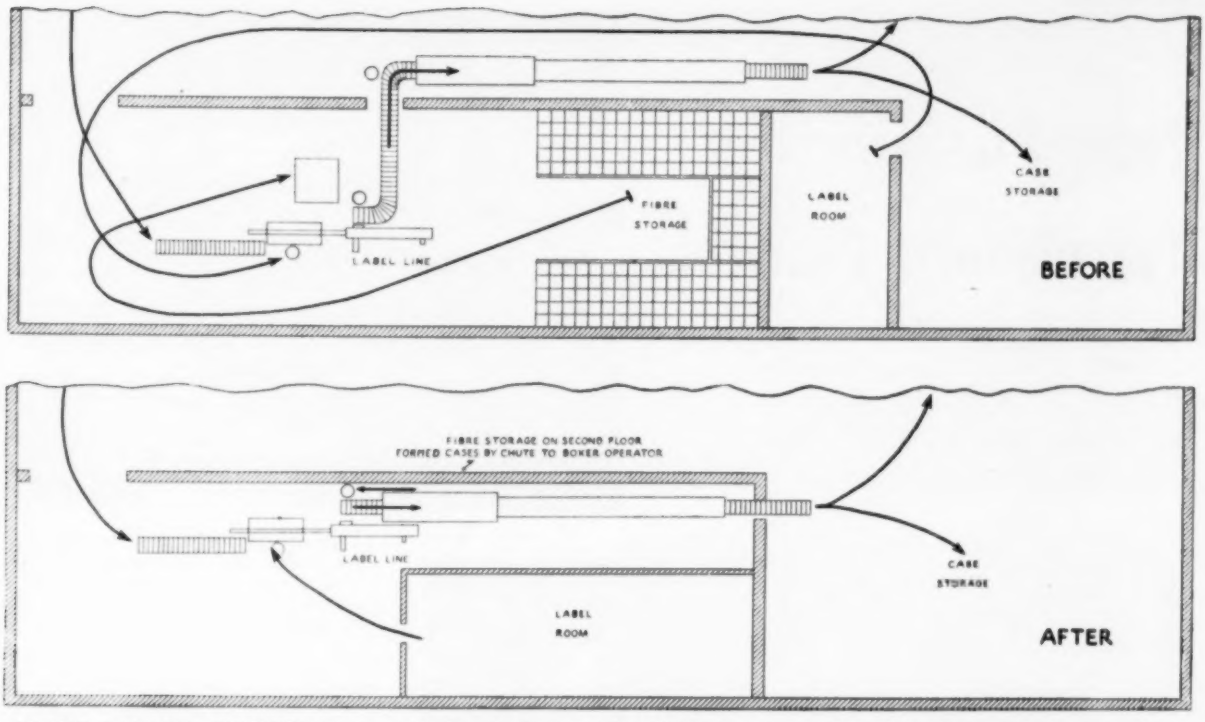


PLANT LAYOUT CHANGES were relatively simple but effected big improvement in this fibre products operation

10 Production Gains You Make by Streamlining Plant Layout

How Sound Production Engineering Cuts Handling Time and Expense, Increases Work Space, Often Without Building or Expanding

By J. A. KELLER and J. J. BUTLER
Geo. Fry & Associates
Management Engineers

WHAT DOES a wood product manufacturer do who is faced with the problem of increasing output and improving manufacturing efficiency, but is unable to build a new plant or expand his present plant?

Surprising improvements and economies have been gained in this situation by careful study and simplification of *plant layout*. The proper arrangement of equipment and work stations in the shop, laid out in accordance with sound industrial engineering principles, offers the following direct benefits:

Improves operating efficiency of manufacturing processes.

Provides definite lines and the shortest feasible distance of work travel.

Reduces the amount and cost of material handling.

Cuts down over-all time of work in process.

Reduces the amount of work in process.

Decreases the inventory in storerooms.

Brings about more efficient utilization of labor and equipment.

Conserves floor space.

Simplifies work routing.

Reduces the labor and cost of production control.

The accompanying "before and after" case history illustration shows improvements in the warehouse and packing operations of a producer of fibre products. In this case reductions in handling time and in expense, as well as a considerable gain in available plant space, resulted directly from a comparatively simple and inexpensive change in layout.

In the "before" layout, labels, fibre and finished goods came from widely separated locations on the first floor. Finished goods moved along one conveyor, were moved, packed, labeled, transferred to another conveyor, and carried to storage.

Careful analysis of the flow of work revealed that:

1. Labels were moved almost the complete length of the department, around the conveyor, to the work station.
2. Fibre cases were also moved a long distance, around the conveyor, to the work station.
3. Space at the packing station was cluttered and crowded and a very large area was required for the operation.

Continued on Page 70

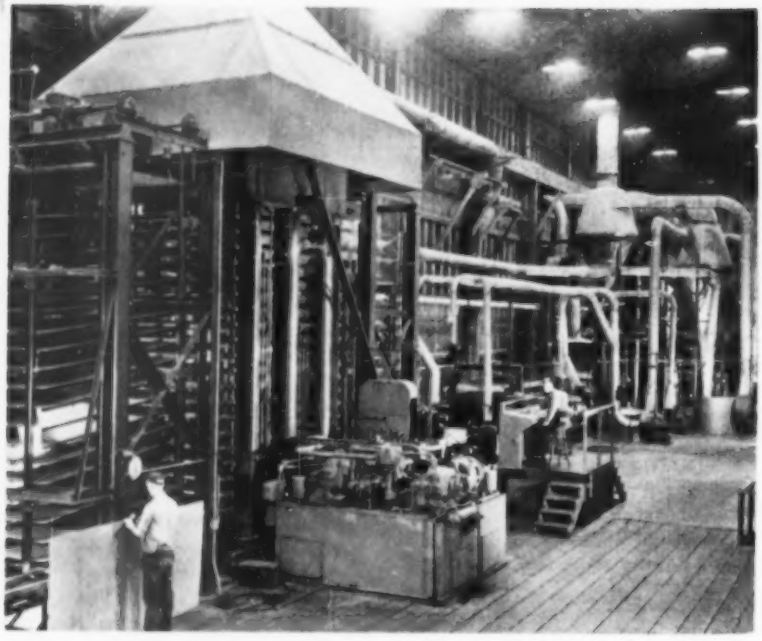
No. 2 in Vital New Series

Published in November, 1952, the first article in this important series covered questions that must be answered if costs are to be kept under control in the operation of a wood industry plant. Succeeding articles will discuss the practical aspects of production planning and control, production standards and wage incentives.

Inquiries on related problems from management readers will be welcomed by both the author and the editors of WOOD AND WOOD PRODUCTS.

New Push-Button Hardboard Plant

$1,000,000 Anacortes Layout Produces Strong, Flexible Board of Many Uses by Semi-Dry Process



AUTOMATIC CONTROL is feature of semi-dry hardboard process. Above is one of two control boards. Big 20-opening hot press and cooker section are shown at left.

"HATBAND" FLEXIBILITY of new ⅛ in. hardboard demonstrated by H. W. McClary, general manager

ANACORTES VENEER, INC., one of the largest worker-owned plywood plants in the Pacific Northwest, has announced volume production of a new hardboard with outstanding physical properties in its new $1,000,000 push-button plant at Anacortes, Wash.

Among other features, the unusual strength and elasticity of the board are attributed to the unique new process employed in its manufacture—the so-called semi-dry process developed by the plywood industry through the Plywood Research Foundation of Tacoma, Wash. Under this process, the dry fiber bundles are formed in a deep spongy mat prior to pressing. Because the fibers are conveyed to the felter by means of air, they fall in a non-directional pattern in the mat.

This means that some stand on end, or nearly so. In pressing, the upright fibers are bent over, in contrast to being flattened in layers, with the result that they form tens of thousands of microscopic interlocking trusses.

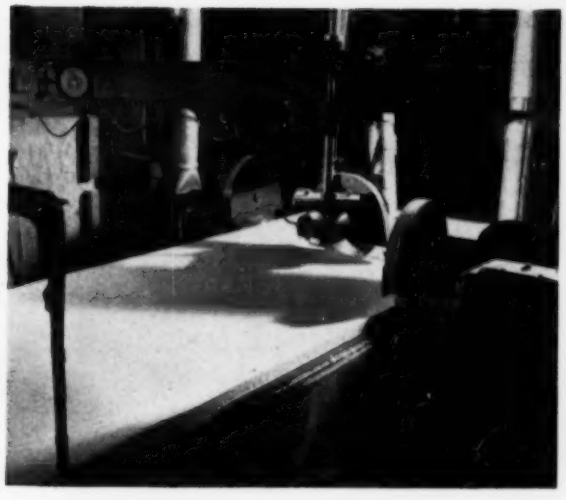
Anacortes is said to be the first plywood plant in the country to get into commercial production of hardboard, although several other plywood manufacturers have pilot operations under way. The move climaxes a forward-looking three-year expansion program solidly backed by the firm's 270 owner-workers who have consistently supported industry research aimed at development of new products from maximum utilization of raw material.

The new hardboard is made solely from solid old growth Douglas fir which accumulates in various forms in the plywood plant. This material includes log centers which remain after logs have been "peeled" and solid veneer trimmings which cannot be used for plywood.

These are chipped into small pieces of wood about the size of a man's thumbnail (they average ⅝ in. square). After softening by steam, they are mechanically ground into tiny wood fiber bundles with brushed-out ends.

After blending with a small amount of resins and other additives, the fibers appear on a moving belt in the form of a deep, spongy blanket which is subsequently hot-pressed into the final product.

The entire process is automatic to this point. The only hand labor involved is that of feeding and unload-



ing from trim saws and careful, systematic grading.

The automatic features of the semi-dry process cut production costs to the bone, permit precision quality control at every point on the production line, assure uniformity of physical properties in every sheet.

The quality control system was worked out by Kjell Stordalen, new superintendent of the hardboard plant, who was instrumental in getting volume production shortly after joining the firm.

In the Anacortes production setup, veneer trimmings are chipped with a 66 in. chipper, fed from the green end. Core blocks are chipped in a 112 in. four-knife, 250 h.p. unit.

Chips from both sources are screened in a separate operation to an average size of ⅝ in. and then fed into chip storage bins. There are six bins capable of holding 1,000,000 lbs. of green fir chips.

No outside chip sources are contemplated at this time. In fact, there are ample leftovers from the plywood operation to fuel the main power plant plant most of the time. Occasional fluctuations in seasonal fuel requirements are met by supplementing hog fuel with small amounts of fuel oil.

Continuous Cooker Used

The Anacortes plant is a 50-ton mill employing a continuous cooker. Metered chips are fed into a rotary barrel-type valve which feeds the main tube of the cooker by a series of adjustable paddles set at right angles to the axis.

The out-feed end of the cooker is controlled by another rotary or barrel-type valve. Steam pressures from 20 to 50 psi and retention times of 5 to 20 minutes are used for softening the chips. The system provides for a continuous, even flow of material to two grinders at a uniform controlled temperature. The chips are discharged from the cooker outlet valve into a bulk flow conveyor, and screw conveyors from the bulk flow meter the chips into each grinder.

Wax size is added to the fiber during processing, and a small amount of themosetting resin is mixed into the material in a blender after grinding.

Upon being discharged from the blender, the fibers are picked up in an air stream by a blower and discharged into a cyclone for air separation, with the fibers being fed directly to the felting machine.

Although this is a simple step in handling, it creates decided advantages as compared with the conventional wet process of manufacture where the fiber is handled in slurry, usually of a consistency of less than 4 per cent. Under the semi-dry process, the equipment and power necessary to handle the immense volume of water required in the wet process are eliminated.

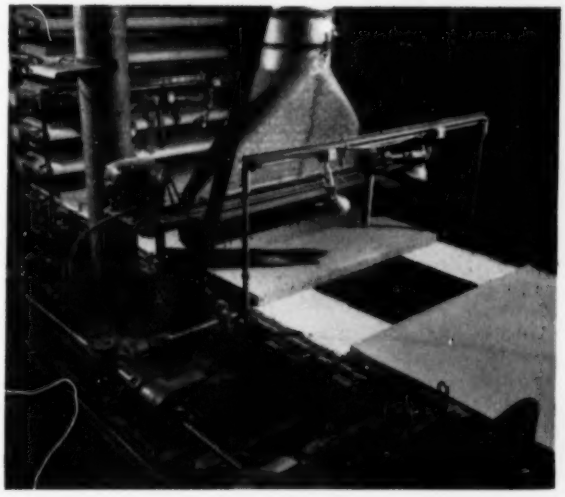
The felting machine is a special design in which the fibers are fed by chute to a high-speed rotor in the

Continued on Page 57

TEST SAMPLES are taken from mat at frequent intervals for laboratory analysis

TRAVELING SAW cuts mat to exact lengths as it leaves precompressor, ready for curing

ELECTRIC EYE activates loading mechanism which automatically feeds press loader



MOISTURE CONTROL TEST in Anacortes laboratory, where product is constantly checked

NEW STYLING of product is strong weapon in oak flooring's program.

By HENRY H. WILLINS
Secretary-Treasurer,
National Oak Flooring
Manufacturers' Assn.

How Oak Flooring Fights for One of Wood's Big Markets

7 Ways Oak Flooring Fights for Bigger Share of Market

New production machinery
Production line economies
Scientific seasoning
New installation methods
Outselling "substitutes"
Nationwide publicity
Consistent advertising

Wood is one of the most wonderful gifts of Nature. It has been called man's best friend because it serves him from the cradle to the grave. Most versatile of all living substances, it is described by one writer as "the very fiber of this nation." It has played a leading role in the growth of America since the time of the first colonists

In peace it has been indispensable in building homes, schools, churches, factories, railroads and hundreds of articles in everyday use. In time of war it has served the nation faithfully in the making of everything from packing cases to barracks, from box cars to planes. Wood is better suited to more purposes than any other material.

How well have we as a nation been utilizing this valuable servant in recent years?

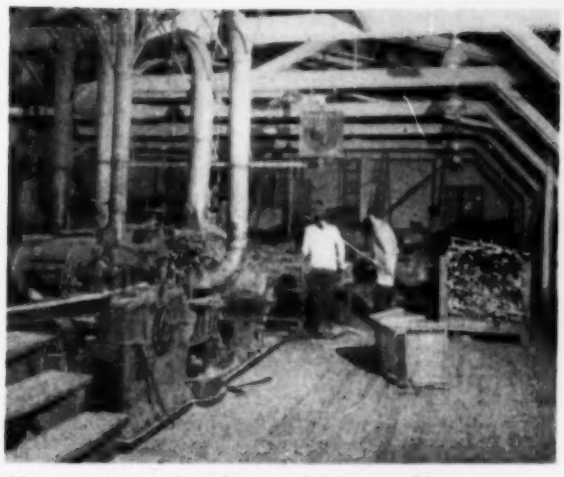
In the construction industry, which consumes about two-thirds of the country's lumber production, most of the lumber goes into dwellings and farm buildings. According to Frank J. Hanrahan, chief engineer of the National Lumber Manufacturers' Association, the 1940 census showed that eight out of every 10 residential structures were sided with wood. In 1949, out of every 10 new single-family dwellings insured by FHA, only four were sided with wood.

Mr. Hanrahan carries the point further by showing that in 1949 the per capita consumption of lumber for all uses was less than half of what it was in 1909! The per capita consumption in 1909 was 477 bd.ft. In 1949, with the population one and a half times greater and the number of new non-farm dwelling units more than double, the per capita lumber consumption was only 224 bd. ft.

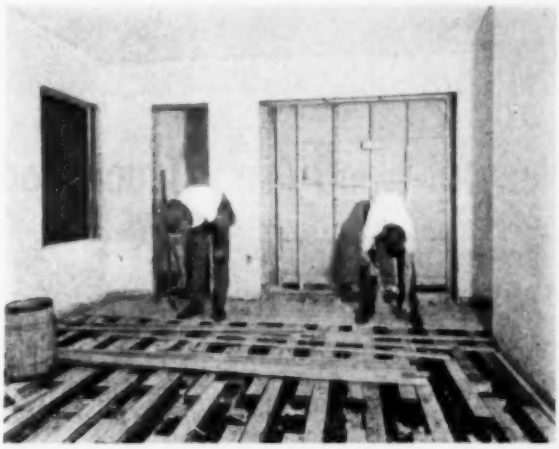
Here's a good example of what has happened in specific markets during this same period. In 1909, wood shingle production totaled more than 18.5 million squares. In 1949, with new dwelling construction almost double the 1909 figure, the output of wood shingles was less than 4 million squares.

Not so many years ago, wood dominated the sheathing market. We all know that is not the case today. Years ago, wood enjoyed almost a clear field in the desk and office equipment market. Today we find only about 50% of the desks and about 7% of the filing cabinets are made of wood. In such items as window frames, storm sash, kitchen cabinets and kitchen fixtures, wood has lost about half its former market. Even in furniture, metal has made inroads in the market once held exclusively by wood.

ADVERTISING like this helps sell architects, builders, dealers



QUALITY OF PRODUCT is maintained through scientific seasoning and modern production machinery



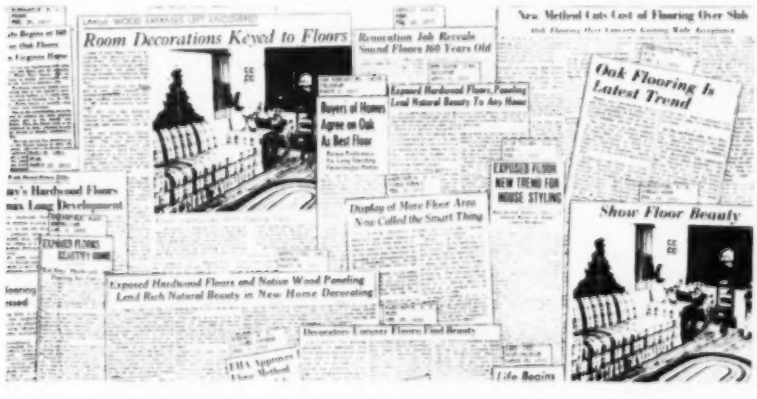
PACKAGING with steel strapping and new method of installing over concrete slab aid sales

Old-timers will recall that back around the turn of the century, and even later, flooring of oak or other hardwood was a luxury feature in a home. Production was relatively low and unit costs were high. Introduction of high-speed side and end-matching machines, scientific kiln-drying methods and other advances served to improve the product tremendously, stimulate demand and permit mass production on a basis which cut unit costs. As a result, oak flooring was transformed from a luxury item to one within the reach of every home owner.

It is difficult to make an exact comparison of hardwood flooring consumption in 1909 vs. 1949, as we did with lumber products in general. Nowadays more than 90% of the nation's output comes from the Southern and Appalachian regions, and approximately 95% of that is oak. In 1909, most of the flooring mills were still in the North. Overall production figures, so far as I know, are unavailable. Nevertheless, the figures at hand indicate that around 43 million bd. ft. of oak flooring were shipped in 1909. In 1949, with about twice as many new non-farm dwelling units, shipments were *17½ times as great*. The figure was 785 million bd. ft. Remember, overall lumber consumption per capita *dropped* about 50% in that period.

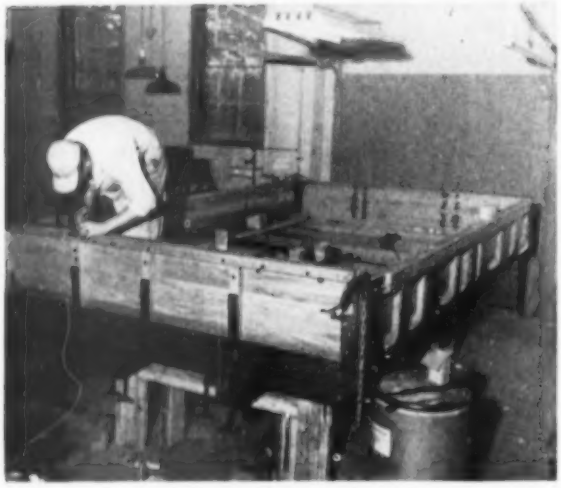
Probably a more accurate gauge of the growing popularity of hardwood flooring is the increased volume shipped *per dwelling unit constructed*.

Continued on Page 70


Room Decorations Keyed to Floors
Renovation Job Reveals Sound Floors 160 Years Old
Exposed Hardwood Floors, Paneling Lend Natural Beauty To Any Home
Buyers of Homes Agree on Oak As Best Floor
Oak Flooring Is Latest Trend
EXPOSED FLOOR NEW TREND FOR HOUSE STYLING
Display of More Floor Area Now Called the Smart Thing
Show Floor Beauty
Exposed Hardwood Floors and Native Wood Paneling Lend Rich Natural Beauty to New Home Decorating

PUBLICITY in newspapers, magazines, other media boosts oak flooring

New All-Wood Army Truck Body Here!



Triumph for wood research is new commercially adaptable truck body (Type III) shown here under construction and completed at Timber Engineering Co. laboratory, Washington

COMMERCIALLY ADAPTABLE

"Although designed and built primarily for the military, there is no reason why manufacturers cannot put all-wood truck bodies into production now for commercial use. If produced in quantities permitting modern assembly line methods, available data indicate a cost within practical limits acceptable to the military and industry and economically competitive with steel. A manufacturer of these modern wood truck bodies should have no worries about a scarcity of material."—C. A. RISHELL.

AN INNOVATION in military vehicle construction was revealed in Washington recently with the first public showing of a new all-wood Army truck body. It was designed and built by the staff of Timber Engineering Co.'s Research Laboratory in co-operation with Army Ordnance officials and is the first of three different units projected as part of the hardwood research program. (The project was first reported in a "Trends" item in October 1952 WOOD & WOOD PRODUCTS.)

A vast improvement over the wood truck bodies used in World War I', the new unit offers powerful evidence of the extent to which the industry has progressed through research. It stands as a fitting memorial to the efforts of the late Harry T. Kendall, who a year ago won the Army Ordnance Department's co-operation and initiated the wood vehicle body program since guided by Carl A. Rishell, Teco's director of research.

The basic design feature incorporated in all three types is a continuous U-shaped bent laminated frame, an idea borrowed from the time-tested method of building ship frames. These frames combine the functions of bolsters and side support members, eliminating the need for any mechanical joint between bottom and sides.

Compared to the box-like World War II wood bodies, the new types are stronger, yet lighter. Every wood part has been impregnated throughout with pentachlorophenol, so fungus and decay will be next to impossible. The adhesive used in bonding the wood is 100% waterproof to prevent delamination, regardless of exposure to moist tropical conditions. Both wood and adhesive will stand extremes in temperature. In addition, a dimensional stabilizing chemical treatment has been applied to minimize shrinkage and swelling of the wood.

All three prototype bodies have been designed differently for mounting on the same Army 2½ ton 6 x 6 dual wheel M45 chassis. A brief description of each type follows:

TYPE I features the aircraft engineering principle known as "stressed skin construction." Frame, or skeleton, is made of bent laminated black gum veneers, with red oak plywood securely glued over both sides of the stout, rigid members. The result is a single unit developing exceptional strength per pound of weight.

TYPE II is similar to Type I except that the stressed skin covers only the floor of the truck, leaving the frames exposed on the side panels.

TYPE III (shown herewith) has panels made of solid red oak, edge glued so as to be easily removed for repair or replacement. These panels have been designed so that the facilities of any furniture plant can be employed in their mass production.

The floor panels on all three types are identical except for thickness. They are made in four sections for convenient assembly. To avert the possibility of buckling, due to swelling, each panel is attached to the frames with expansion bolts operating through elliptical shaped holes. Lateral movement is thus compensated.

Following presentation of the three new wood bodies at the Pentagon, they will undergo rigorous tests at the Aberdeen Proving Grounds.

If Big Timber Runs Out, Must a Mill Close Down?

Wisconsin Land & Lumber Co. Finds Answer: Renovate Plant and Equipment, Solicit Wood Using Industries, Provide Centralized Services They Need

CONFRONTED with depletion of big stands of timber which are necessary to make operation of a large mill practical, Wisconsin Land & Lumber Co., Hermansville, Mich., has taken aggressive action to find new uses for its modern plant and equipment.

With closing of the mill operation, G. Harold Earle, owner of the company, saw dozens of portable sawmills spring up to serve scattered stands and farm lot timber. Earle reasoned that much of this timber would make high-grade lumber which the small mill operators would have difficulty in merchandising.

Consequently, instead of writing off the mill property, as has been the case so often in the past, he decided to put all buildings and equipment in first-class shape. Then he proceeded to lease space to a number of wood using industries. These industries find it convenient and economical to be near the source of supply.

In addition to leasing space, Earle's company is now acting somewhat like a concentration yard for the small mills. The company buys logs delivered to the mill. Payment is made after sawing on the basis of lumber grades produced.

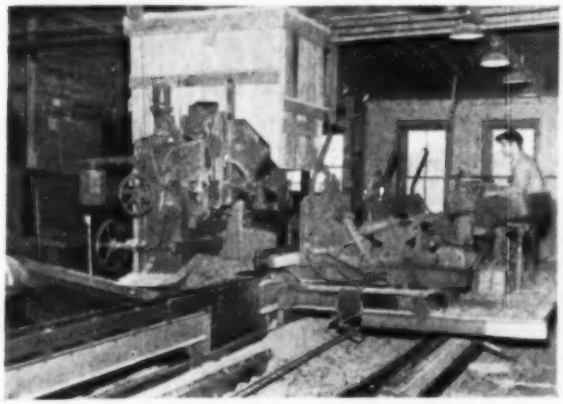
Earle also is kiln drying portable mill production on a per thousand basis. This part of the business is now drawing in lumber to dry from substantial distances.

The Earle approach—finding uses for big mill buildings—should be of interest to others in the sawmill business confronted with a similar problem, since portable mills and the opportunity to merchandise their lumber production frequently spring up after a big mill closes down.

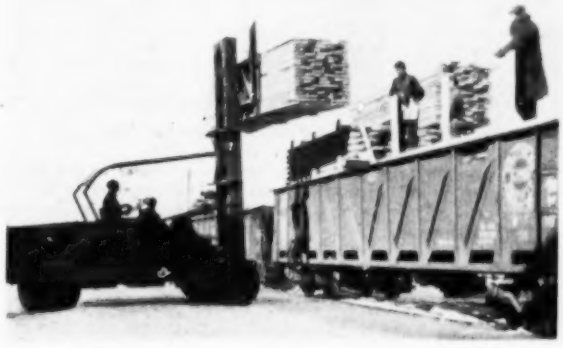
Contract loggers and woodlot owners deliver logs to modern plant (above)

To do the job right, according to Earle, buildings and equipment should be put in first-class operating condition. This includes the acquisition of modern materials handling equipment. Then the mill management must actively solicit woodworking industries that will profit by locating near sources of supply. Finally, services should be offered, such as kiln drying, that will help to facilitate the movement of portable sawed lumber to market.

Modern sawmill equipment is used to cut logs bought from portable trade



Lift trucks and straddle carriers expedite custom handling and sawing



What to Do About Warping and Twisting of Veneer Cores

Several solutions are offered, and other questions answered, in Article 3 of series. Readers are invited to submit their shop problems on veneer and plywood gluing and related subjects for discussion in future articles. Sound, practical comments on answers published here also will be welcomed.—*The Editors.*

By THOMAS D. PERRY

Q. 22. We have trouble with warping and twisting in our 3-ply, ¼ in. plywood. What is the answer?

A. 22. A bit of thought will indicate that 3-ply construction, with 1/28 in. faces and backs and a 3/16 in. core (which gives reasonable thickness allowance for hot press compression and sanding) has about 25% of its wood thickness in the outer layers and about 75% in the cross-laid inner layer. Consequently, the core is the dominant factor in flatness, strength or stiffness.

Rotary cut 3/16 in. veneer, when pressed flat either in drying or in gluing, is squeezed together (compressed) on its convex surface and stretched apart (under tension) on its concave surface. Unless held in a flat position, such rotary veneers try to resume their original curvature (or nearly so) when the pressure is released.

In the 3-ply construction under consideration, the thin outer layers, each about 12% of the total plywood thickness, will be rather ineffective in keeping the 75% in the center, or core, in a reasonably flat condition, as will be noted in the upper sketch of Fig. 1. If this 3-ply, ¼ in. plywood is framed or stiffened by the parts with which it is assembled, the warping tendency may be unimportant, but if unsupported some remedial measures will be required.

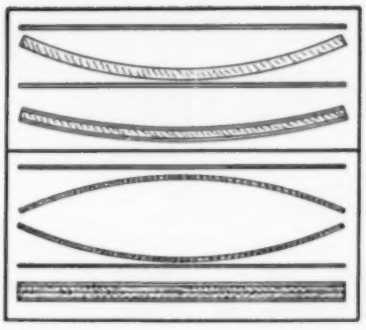


FIG. 1—How veneer tries to resume its original curvature in 3-ply construction (top) and in 4-ply (bottom)

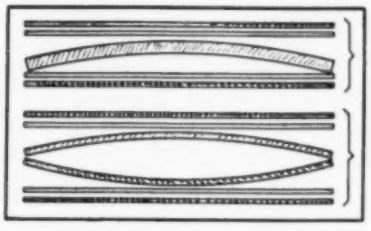


FIG. 2—Single versus double veneer cores in 5-ply construction

There are several ways to reduce this warping to a substantial extent:

(1) The use of very "loose" cut veneer, so loose that it will just hold together to go through the drier, splicer and spreader. In such applications loose-cut veneer is desirable, but it should be free of rough cutting or gaps.

(2) Using "tenderized" veneer, a method of making even "tight" veneer as pliable as possible by slitting, as described in Question 28.

(3) The use of a 4-ply construction in which the two center plies, each 3/32 in. thick, are preglued together, with the concave or loose sides facing each other so that the curving tendencies are in balance, as in the lower sketch of Fig. 1. Unfortunately there is no very practical way to use a 2-side spreader in a 4-ply layup. If a single side spreader is available, with one dry roll, this 4-ply construction can be laid up and glued normally in one operation.

Another answer, which goes beyond the scope of the question, is to recommend the use of a ¼ in. 5-ply construction in which the three inner layers will be 1/16 in. and all warping tendencies will be largely neutralized.

TABLE A—SUGGESTED TOLERANCES[1]

Rotary Commercial Veneer at 10% Moisture Content

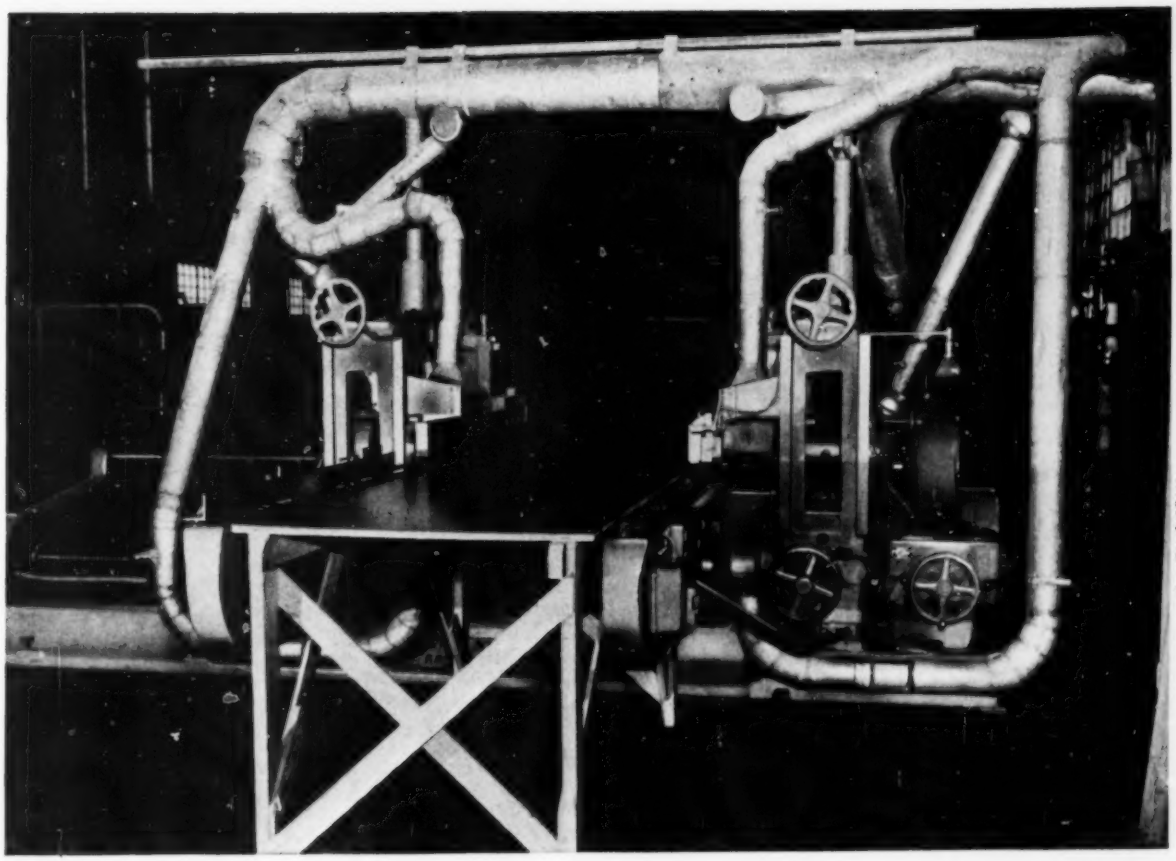
Nominal Thickness	Decimal	Tolerance	Plus or Minus	Thickness Limits Max.	Min.
1/60 in.	.0167 in.	10%	.0017 in.	.0184 in.	.0150 in.
1/50 in.	.0200 in.	10%	.0020 in.	.0220 in.	.0180 in.
1/40 in.	.0250 in.	8%	.0020 in.	.0270 in.	.0230 in.
1/32 in.[3]	.0312 in.	8%	.0025 in.	.0337 in.	.0287 in.
1/30 in.[3]	.0333 in.	6%	.0020 in.	.0353 in.	.0313 in.
1/28 in.[3]	.0357 in.	6%	.0021 in.	.0378 in.	.0336 in.
1/24 in.	.0417 in.	6%	.0025 in.	.0442 in.	.0392 in.
1/20 in.	.0500 in.	4%	.0020 in.	.0520 in.	.0480 in.
1/16 in.	.0625 in.	4%	.0025 in.	.0650 in.	.0600 in.
1/12 in.	.0833 in.	4%	.0033 in.	.0866 in.	.0800 in.
1/10 in.[3]	.1000 in.	2%	.0020 in.	.1020 in.	.0980 in.
1/9 in.	.1111 in.	2%	.0022 in.	.1133 in.	.1089 in.
1/8 in.	.1250 in.	2%	.0025 in.	.1275 in.	.1225 in.
1/7 in.	.1429 in.	2%	.0029 in.	.1458 in.	.1400 in.
5/32 in.[4]	.1562 in.	2%	.0031 in.	.1593 in.	.1431 in.
1/6 in.[4]	.1667 in.	2%	.0033 in.	.1700 in.	.1634 in.
3/16 in.	.1875 in.	1%	.0019 in.	.1984 in.	.1856 in.
1/5 in.	.2000 in.	1%	.0020 in.	.2020 in.	.1980 in.
7/32 in.	.2187 in.	1%	.0022 in.	.2209 in.	.2165 in.
1/4 in.	.2500 in.	1%	.0025 in.	.2525 in.	.2475 in.
9/32 in.	.2812 in.	1%	.0028 in.	.2840 in.	.2784 in.
5/16 in.	.3125 in.	1%	.0031 in.	.3155 in.	.3094 in.

(1) "Veneers & Plywood" Indianapolis, December 1936.
"Furniture Index" Jamestown, October 1937.

(2) These thicknesses are now all used to a greater or less extent, 1/28 in. being the more common, to match the standard thickness of sliced face veneer. Theoretically, it would seem better to eliminate 1/32 in. and 1/28 in., leaving 1/30 in. as standard in this range.

(3) By common consent, 3/32 in., exceedingly close to 1/10 in., has been generally ignored by the trade.

(4) One of these, 5/32 in. or 1/6 in., should be eliminated in the interest of simplification, theoretically the former.



Look to The Greenlee if you want Accuracy and Speed in sizing plywood

Accuracy and speed are inherent in the GREENLEE No. 545 Double-End Tenoner, because it was planned that way. And this means that the purchaser profits as a result of it, regardless of the use to which it is put.

Take the West Coast installation shown above as an example. Here is a GREENLEE No. 545 with all that is needed to make it a top producer. Purchased for sizing plywood and hardboard, it is fitted with roller hold-downs and hogging heads on the tenoning units.

Hogging the offal on the machine represents a real saving, since it eliminates conveyors and offal disposal problems. Why the wooden table between the chain beams? It was improvised by the customer to support the stock for a special operation.

Yes, the GREENLEE No. 545 is sturdy, accurate, and fast. Beyond that, it is so easily set up that short runs are often the rule rather than the exception.

Many design features are responsible for this, such as the dial system, mounting of the pressure beams — but all are illustrated and described in our 20-page bulletin. Why not ask for it now and learn of the many reasons why the GREENLEE Double-End Tenoner brings unusual accuracy and speed to plywood sizing. Greenlee Bros. & Co., 1921 Twentieth Avenue, Rockford, Illinois.

TOOLS FOR CRAFTSMEN

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GREENLEE WOODWORKING MACHINERY: MORTISERS · BORERS · SAWS · TENONERS · PLANERS · SHAPERS · MORTISING & BORING TOOLS

Q. 23. When thicker faces are used, do the same comments apply as in Question 22?

A. 23. If the 3-ply is made with non-figured face veneers, for utility rather than appearance, it is often made with ⅛ in. veneer cores and 1/16 in. outsides. This gives 50% of the veneer thickness in each direction and will show far less warping than when made with 1/28 in. faces and backs.

Some authorities favor making such utility plywood with 1/12 in. veneers for both centers and outsides, in order to utilize the full cutting of the log. This results in 66% of the thickness in the outer layers, and 33% in the center. This will be flatter than with 1/28 in. outer layers, but not as satisfactory in that regard as the construction with 1/16 in. outsides. Both of the latter constructions will be ¼ in. scant after sanding.

An even flatter construction would be 4-ply (lower Fig. 1) with 1/20 in. faces and backs, and with two 1/12 in. rotary veneer cores laid in balance. This would have sufficient thickness to sand to ¼ in. plump.

The principle demonstrated for 3-ply in Fig. 1 also applies to 5-ply constructions, as shown in Fig. 2. This modification to a duplex core is not nearly as important in 5-ply as in 3-ply.

Good Idea, But Costly

Q. 24. In making lumber cores it is usually recommended that wider core strips be ripped apart, to meet the normal 4 in. maximum strip width, and either turned or reversed to balance inherent trends toward warping. Is this method practical and economical in making veneer cores?

A. 24. Theoretically, the answer would be yes, but the cost and handling problems would usually make it impractical. Several machines have been developed for edge gluing narrow veneer strips for stock panel cores. The usual difficulty comes from variations in the thickness of the narrow strips, which are usually accumulated from several sources. Such variations are likely to show through when using 1/28 in. veneer faces, but may not be troublesome with thicker faces or might not be objectionable for plywood limited to structural uses.

Q. 25. Is there a thickness in rotary veneer at which the warping effects transmitted to the plywood are not considered serious?

A. 25. Perhaps the best answer to this question is ⅛ in. in low density woods (mostly softwoods) and 1/12 in. in the denser species. These thicknesses can be cut firm and tight, and in 5-, 7- or 9-ply constructions make surprisingly flat plywood. But in 3-ply constructions the two outer layers must be laid with their concave sides toward the central layer or core, to permit the curving tendency of the face to neutralize that of the back.

Q. 26. Is it practical to make lumber cores for ¼ in. or ⅜ in. plywood?

A. 26. This may be a bit outside the scope of this article, but it is close enough to warrant an answer. Yes, it can be done, but it is rather expensive and the cost is justified only where extreme flatness is imperative, as in a thin cabinet door or slide.

Lumber cores of 4/4 stock are glued edgewise in the usual way and resawn for thickness. If the cores are moderate in size, a conventional band saw can be rigged for such resawing. It is seldom possible to get more than two thicknesses out of 4/4 lumber. The resawn cores are planed on both sides in the usual way. Attempts to edge glue thinner than 4/4 stock are usually unsatisfactory.

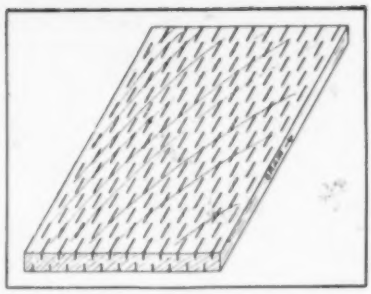

FIG. 3—How veneer can be "tenderized" to reduce warping

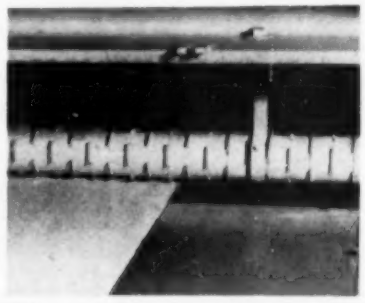

FIG. 4—Detail of slitting roller in veneer "tenderizer"

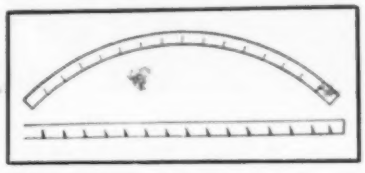

FIG. 5—How cutting checks show up in thick cuts of rotary veneer

Q. 27. Have standards of thickness and allowable tolerances for rotary cut veneers been established by any responsible agency?

A. 27. There have been several attempts, none of which have secured wide recognition. A thickness tolerance table which caused considerable discussion when first published in 1937 is presented here as Table A.

Another more limited table, mandatory for use with aircraft plywood, was incorporated in Army-Navy Specification AN-P-69a, and is presented here as Table B.

Both Tables A and B refer to veneer that has been dried to approximately 10% moisture content but make no reference to the initial thickness at which the lathe is set for cutting green veneer. The resulting shrinkage from green (or cooked) veneer is negligible above 30% mois-

Continued on Page 72

TABLE B—VENEER THICKNESSES AND TOLERANCES
8% to 12% Moisture Content

Veneer Thickness	Tolerance	Thickness Limits Max.	Min.
.011 (1/90) in.	± .001 in. (10%)	.012 in.	.010 in.
.020 (1/50) in.	± .002 in. (10%)	.022 in.	.018 in.
.030	± .002 in. (7%)	.032 in.	.028 in.
.034 (1/30) in.	± .003 in. (9%)	.037 in.	.031 in.
.040 (1/25) in.	± .003 in. (7%)	.043 in.	.037 in.
.047 (3/64) in.	± .003 in. (6%)	.050 in.	.044 in.
.060	± .003 in. (5%)	.063 in.	.057 in.
.068 (1/15) in.	± .004 in. (6%)	.072 in.	.064 in.
.080 (1/12) in.	± .004 in. (5%)	.084 in.	.076 in.
.095 (1/10) in.	± .004 in. (4%)	.099 in.	.091 in.

(Parenthetical numbers are approximate equivalents, not included in official specification.)

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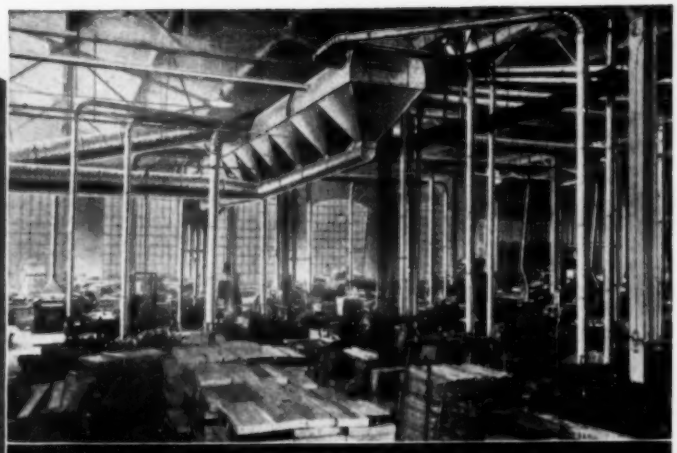

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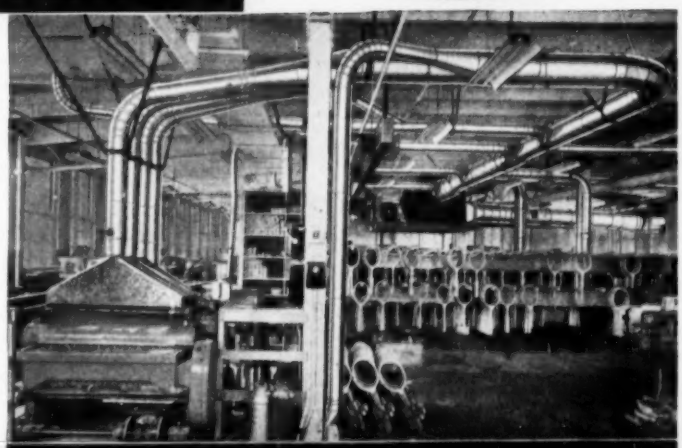

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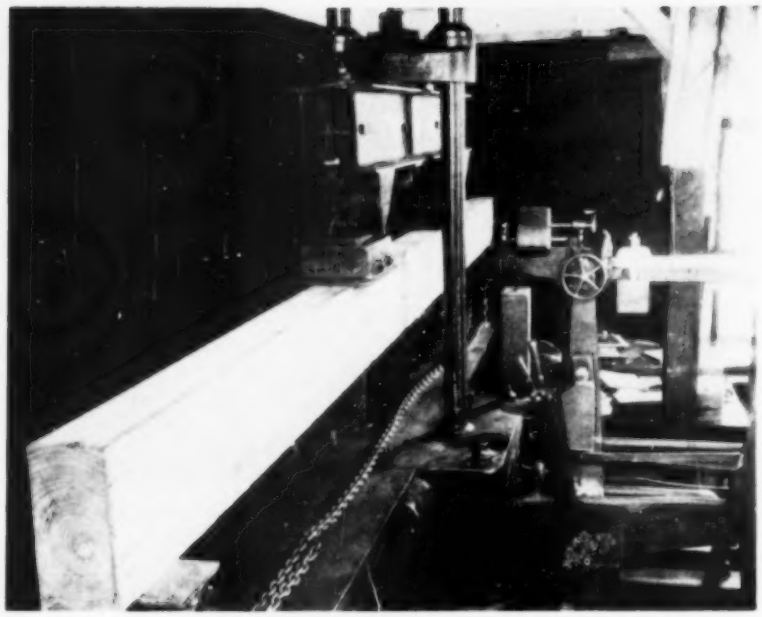
Basic Principles of Structural Lumber Grading

Structural Factors, Ratios and Properties—Trends in Research

By LYMAN W. WOOD*



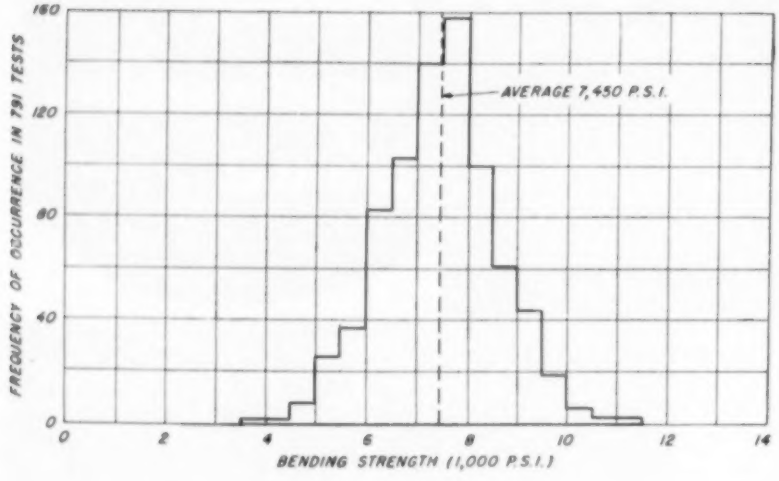


FIG. 1 (above)—Structural timber under test at Forest Products Laboratory. **FIG. 2** (left)—Frequency diagram showing range in bending strength values in small specimens of clear, green Douglas fir

INDIVIDUAL PIECES OF LUMBER, as they come from the saw, represent a wide range in the characteristics that determine strength. The purpose of structural grading is to select and classify them according to their strength, the groups formed being known as strength grades or structural grades.

Any such group is characterized by a working stress value for use in structural design; it is thus sometimes known as a stress grade. Since there are usually two or more stress grades in a species, the structural designer has an orderly progression of strength values from which to choose.

Some grades of lumber are established on the basis of the appearance and physical character of the piece, with various uses in mind, but without particular regard for strength. Among these are the factory or shop grades, based on the number and size of clear cuttings that can be obtained from the piece, and the yard grades, based on use of the piece in its entirety.

Structural grades are concerned with features that relate to strength and to uses depending on the strength of the whole piece, with little regard to its appearance or to the amount of clear material that might be cut from it.

Most important factors that influence the strength of structural lumber are the strength of the clear wood substance and its variability, the moisture condition, and the size and location of strength-reducing characteristics.

The clear wood substance in different species has different strength properties. Further, wood within any species varies in strength over a considerable range (Fig. 2). Since strength varies with the density of wood, some of this variability is eliminated by excluding pieces of exceptionally light weight or by applying "density rules" based on the rate of growth and the amount of summer-

Decay has an early and serious effect on strength that usually cannot be estimated from visual observation. For this reason, decay is closely limited or is entirely prohibited in the structural grades.

The direct effect of drying of wood is the stiffening and strengthening of the wood fibers. In large timbers, however, this may be accompanied by checking or splitting that largely offsets the gain in strength of the wood fibers. Some increase of strength in drying is recognized in the smaller sizes of structural lumber subjected to bending and in compression members of all sizes.

Knots and similar features are often thought of as strength defects, but their presence is recognized in all grades of structural lumber, and they are perhaps better known as strength-reducing characteristics. Slope of grain is one of the most important of these characteristics. A general slope of grain may seriously reduce the strength of an otherwise

*Engineer, Forest Products Laboratory, Madison, Wis.

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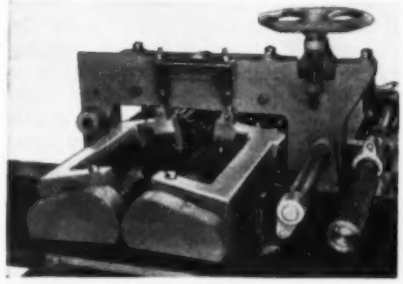
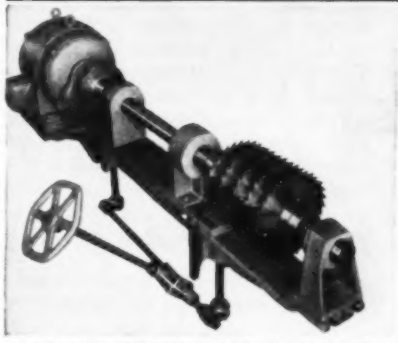


Double spur roll short stock attachment, showing hand-wheel for unit vertical adjustment.



Heart of the No. 441 is the exclusive beam mounting of motor, arbor and bearings as a one-piece, rigid unit.

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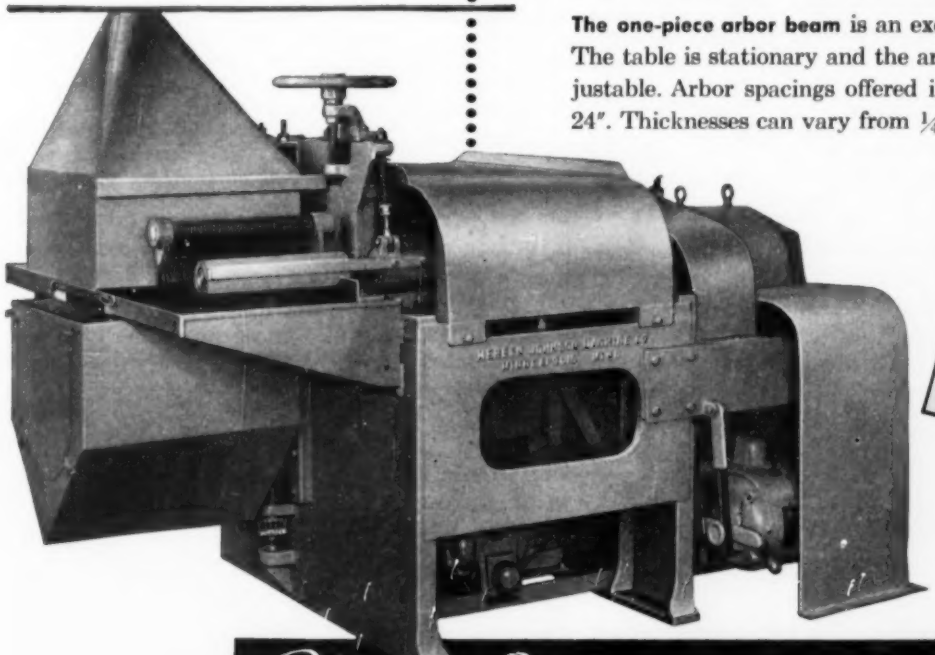
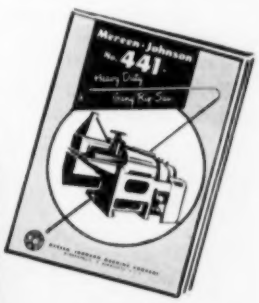
A combination of features make the No. 441 adaptable to a wide variety of gang ripping operations. For *wire-bound boxes* it will rip very short cleats at maximum production speeds while maintaining utmost accuracy . . . For *furniture core stock* and core banding strips, the No. 441 is used as a straight line gang rip saw . . . For *hardwood flooring*, the machine runs as a rough ripper ahead of the matcher, or it can be used as a smooth straight line ripper producing strip flooring . . . *Sheet materials* as insulation board, hardboard and plastic laminates are rapidly turned out when No. 441 machines with 19″ or 24″ arbors are used.

The one-piece arbor beam is an exclusive M-J feature. The table is stationary and the arbor is vertically adjustable. Arbor spacings offered include 12″, 19″ and 24″. Thicknesses can vary from ¼″ to 4″.





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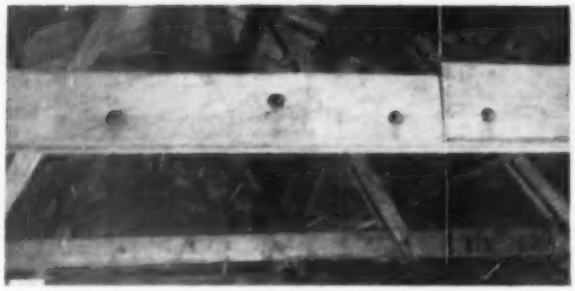


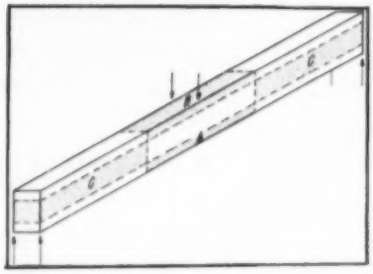
FIG. 3 (left)—Severe slope of grain caused this wood structural member to break in handling. FIG. 4 (below)—Note zones of critical (A) tension, (B) compression, and (C) shear in this sketch of beam under load

clear piece of lumber (Fig. 3).

The weakening effects of a knot are largely due to the distortion and slope of grain around it. For this reason, live knots, dead knots and knot holes are graded alike in structural lumber. The number or spacing as well as the size of knots may be critical in lumber graded for tensile or compressive stresses.

Shakes, checks and splits affect the shear strength in beams or joists but have little effect on other major strength properties. Wane, pitch pockets and holes are limited in structural lumber grades more from considerations of appearance or ease of fabrication than from their effect on strength.

The unequal distribution of stresses throughout the length and cross-section of structural beams is reflected in grading rules that place different limits on different zones of the piece (Fig. 4).



Classes of Structural Lumber

Efficiency in the grading of structural lumber requires that it be separated into classes based on its size and use as follows:

Beams and stringers. Pieces of rectangular cross-section, 5 x 8 in. (nominal) and up, graded with respect to their strength in bending when loaded on the narrow face.

Joists and planks. Pieces of rectangular cross-section, 2 to 4 in. in nominal thickness and 4 in. or more in nominal width, graded with respect to their strength in bending when loaded either on the narrow face as joists or on the wide face as planks.

Posts and timbers. Pieces of square or approximately square cross-section, 5 x 5 in. (nominal) and larger, graded primarily for use as posts or columns, but adapted to miscellaneous uses in which bending strength is not especially important.

The concept of the strength ratio was developed to give numerical values to the strength factors in structural lumber, and thus to bridge the gap between the strength of clear wood and the strength of structural lumber containing knots or other defects. The strength ratio of a piece of structural lumber containing defects is the ratio of its actual strength to what its strength would be if it were clear and free of defects.

Strength ratios have been worked out by analysis of data from tests of structural timbers. Each piece or grade of structural lumber can be characterized by its strength ratio. Application of that ratio to a basic working stress for clear wood of the species gives a suitable working stress for the piece or grade.

Strength ratios have another important use in establishing limits on strength-reducing characteristics when rules for structural grades are formulated. If a grade of a certain design strength value is desired, its required strength ratio is calculated as the ratio of the desired value to the basic stress for clear wood of the species. This calculated strength ratio is then looked up in strength ratio tables to determine the corresponding sizes of knots, slope of grain, and extent of other defects to be permitted in the rules for the grade.

Strength Ratio Tables

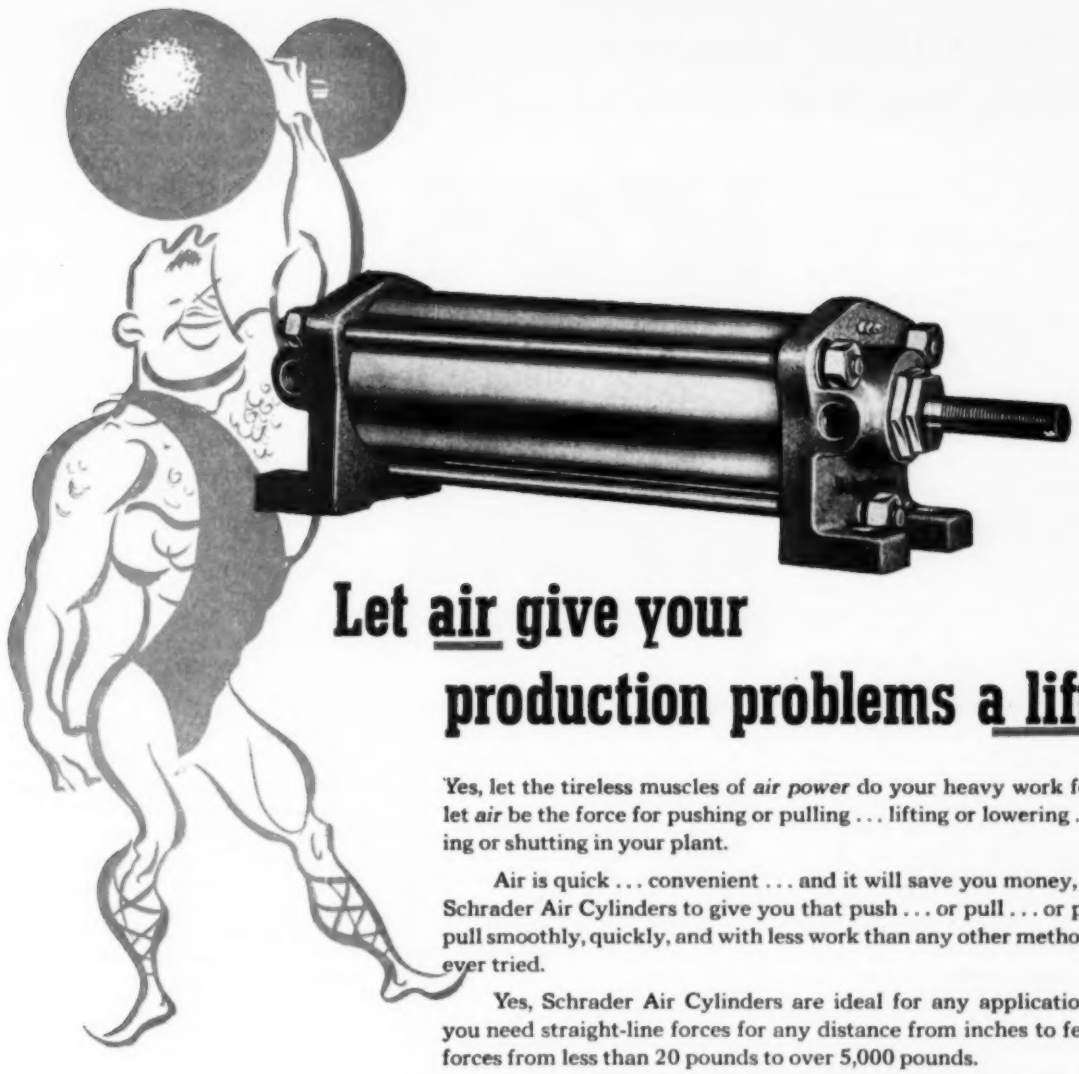
Tables of strength ratios are published by the U. S. Department of Agriculture and by the American Society for Testing Materials. They include tables for knots in various positions in joists and planks, beams and stringers, and posts and timbers. Ratios are related to the size of the knot and to the width of the face in which it appears.

Another table shows strength ratios associated with various slopes of grain. Still other tables show ratios for shakes, checks and splits, also related to their size and to the size of the piece in which they occur. Work-

Continued on Page 68

FIG. 5—Modern pole-frame barn under construction in Wisconsin

FIG. 6—Roof trusses with 50 ft. span under erection for assembly building



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1953 "Wood Award" Competition Expected to Gain Wide Student Interest

After a two-year lapse, wide-spread interest among FPRS members has caused Herbert A. Vance, president of Vance Publishing Corp., to offer again in 1953 the WOOD AND WOOD PRODUCTS Award. As previously, the award winners will be announced at the annual meeting in June, to be held this year in Memphis.

Following a thorough study of past award procedures, R. W. Wellwood, chairman of the FPRS Education Committee, and R. M. McFarland, of WOOD AND WOOD PRODUCTS, have reformulated the rules to provide a wider basis of competition among students in wood technology and forestry schools.

In place of the former single award, two awards will now be offered—one of $350 and a Certificate of Merit to graduate students, and another of $150 with certificate to undergraduates. The committee believes such a division of awards will result in many more interested students submitting papers.

In addition to broadening the competition's base, the Education Committee has formulated plans to publicize the awards to students through the colleges and universities and in the trade press.

Past Wood Award winners included: 1948—Nicholas V. Poletika, currently assistant director of research, Timber Engineering Co., Washington, D. C. His paper was "A New Method for Studying the Elastic Behaviors of Wood," and was written while Poletika was working for his Doctor's degree in Forestry at Yale.

Herbert A. Vance, publisher of WOOD AND WOOD PRODUCTS, presents John Hill, Yale, 1949 Award winner, with his prize check and certificate.

The 1949 winner was John L. Hill, Yale, whose paper was entitled "A Simple Method of Selecting Balsa (OCHROMA LAGOPUS) of High Tensile Strength."

Stephan B. Preston, Yale, won the 1950 award with a paper entitled "The Effects of Fundamental Glue Line Properties on the Strength of Thin Veneer Laminates." Preston is now an instructor at the University of Michigan.

Complete rules governing the competition were published in the FPRS news section of the December 1952 WOOD AND WOOD PRODUCTS. Further information may be obtained by writing the Forest Products Research Society, P. O. 2010, University Sta., Madison, Wis.

"Shot" at Carolina - Chesapeake Meeting

Present at recent Carolinas-Chesapeake meeting at Raleigh, N. C., were: Roy M. Carter, past national president of FPRS; James Bethel, newly elected Section secretary-treasurer; Monie S. Hudson, past Section chairman; R. E. Palmer, newly elected Section chairman; E. S. "Scotty" Harrar, past secretary-treasurer of Section; and Wayne Lewis, hardboard specialist, U. S. Forest Products Laboratory.

Finishing Problems Studied At Northeast Meeting

"Surfacing Preparation and Finishing" was the subject of the first official FPRS Northeast Section "Extension Meeting," held at Gardner, Mass., November 10, Frank T. Parrish, section chairman, reports the "single subject, one-night stand" session attracted an interested attendance of 105 from both local industry and educational groups.

Speakers representing manufacturers of finishing equipment and finishing materials covered a wide range of finishing problems as well as discussing modern finishing techniques and equipment. A question and answer period followed the formal program.

Parrish reports that the next Northeast section "single subject one-night" meeting will be held in Jamestown, N. Y., under the direction of Pete DeSaix, area board member. It is hoped, according to Parrish, that each board member will conduct a similar meeting in his area during his term.

Parrish says that, based on the first meeting at Gardner, a very successful and profitable meeting can be held with an attendance of from 30 up.

The meeting was handled on a "dutch treat" basis and cost only $6.46 for publicity and one guest ticket.

Speakers who contributed to the success of the meeting included: E. E. Oathout, Behr-Manning Co.; P. F. DeSaix, Carborundum Co.; A. Taylor, Curtis Machine Co.; R. B. Robinson, Production Machine Co.; Paul V. Sundberg, Industrial Paint Equipment Co.; Thomas P. Kelly, Lilly Varnish Co.; R. F. Letourneau, E. I. duPont de Nemours & Co., Inc.; Paul Blay, Maas & Waldstein; and E. B. Brown, DeVilbiss Co.

Hardboard Testing Procedures Summarized

At a meeting of the Hardboard Division of the Pacific Northwest Section of Forest Products Research Society, held in Vancouver, B. C., the group heard speakers review work being done in the field of hardboard testing procedures.

Wayne Lewis, Forest Products Laboratory, Madison, Wis., noted that the Committee on Mechanical Wood Technology, Food and Agricultural Organization of the U. N., is interested in the over-all problem of universally accepted test procedures for wood and wood-based products.

Continued on Page 44

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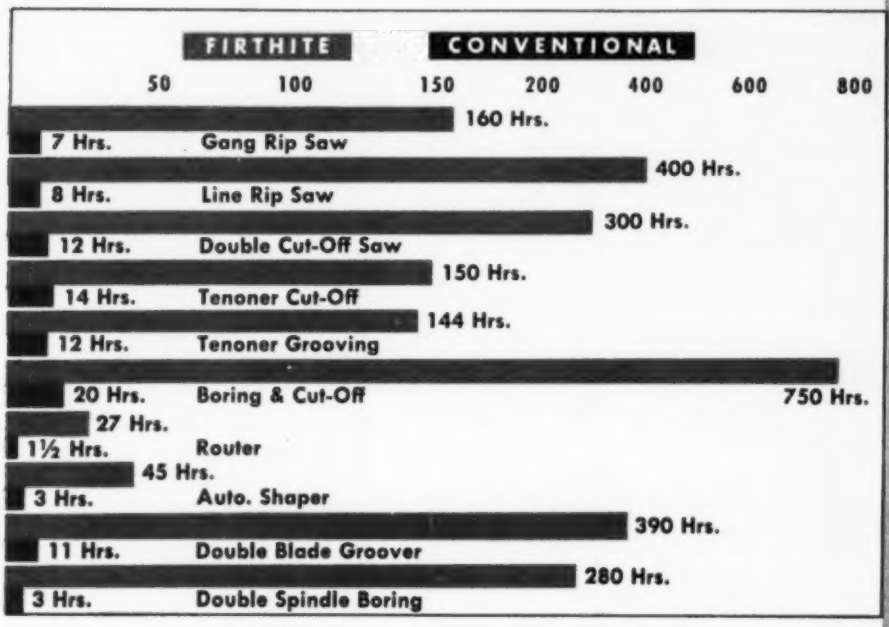

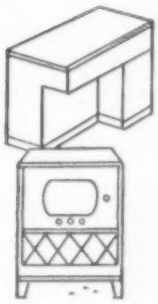

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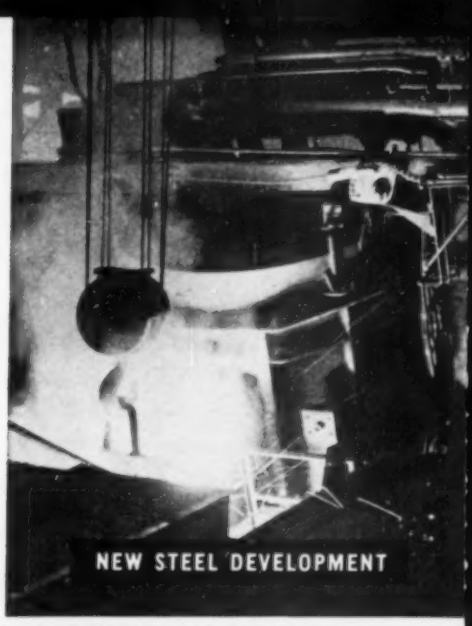
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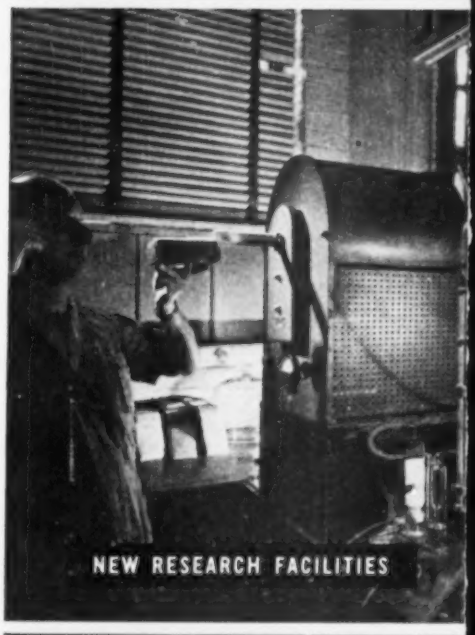
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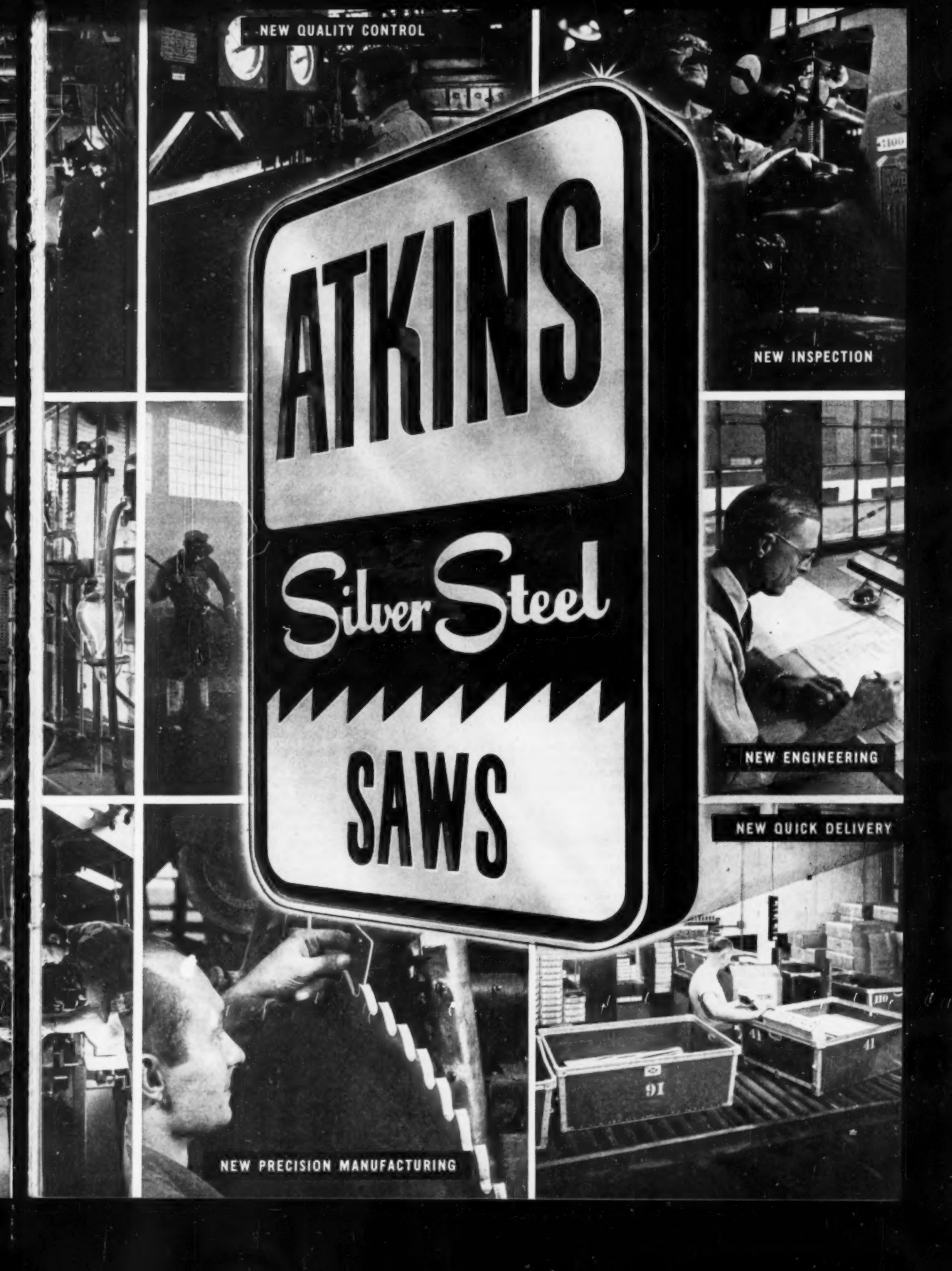
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F.P.R.S. News

Continued from Page 38

He stated that the only major change in the tentative A.S.T.M. standards pertinent to hardboard testing has come from Sweden, where vertical orientation and the use of distilled water in the water absorption test are favored.

Lewis reported that the British are using a simulated dropball test for a measure of toughness and that Canadians at Ottawa are working on a spear test for toughness. Europeans are doing no work on hardness testing.

He suggested that machineability is a wide-open field for good research work. Forest Products Laboratory feels this work can logically be divided into two parts: (1) How can hardboards be machined? and (2) What effect does machining have on the cutting tools?

George Marra, Washington State Institute of Technology, Pullman, Wash., in summarizing his findings on domestic work being done in hardboard testing, reported that three out of 24 organizations questioned had mentioned work accomplished or in progress.

Elmendorf Research Foundation, Chicago, believes the A.S.T.M. static bending test is good and that thickness is quite important in the water absorption test. Relative to swelling resulting from humiditiy changes, Elmendorf thinks there may be a good correlation of this with the swelling values obtained in a water soak test, and sees no reason for both tests in a standarrd if there is a good correlation.

Elmendorf feels linear changes are more important than thickness changes. Wayne Lewis noted that this might depend on final use. It was suggested that a "use book" would be important in policing the proper use of materials.

Lewis commented that over-all dimensional stability is very important.

Elmendorf reported that they use a 0.1-in. steel rod in hardboards for an index of hardness.

Harold Ely, Coos Bay Lumber Co., Coos Bay, Ore., said he felt surface hardness is more important than hardness of the board as a whole.

Elmendorf reported seeing no need for a tension parallel to the surface test if a bending test is used, and said that a good test for tension perpendicular to the surface is needed.

Yale University School of Forestry reported a doctorate thesis involving a study of pressure, temperature, resin content, and other factors in hardboard manufacture.

Timber Engineering Co., Washington, D. C., has published a booklet entitled "How to Evaluate Hardboard Properties." Teco also reported use of a modified version of the Madison type toughness testing machine. Good correlation between strength and toughness was found. Teco has had limited results to date from work being done on a non-destructive test.

In summarizing work done in the previous six months at the Oregon Forest Products Laboratory, J. R. Stillinger presented two papers: (1) "Effects of Head Speed on Modulus of Rupture in the Static Bending Test of Five Types of Commercial Hardboards Using a 3-by-12 in. Test Specimen on an 8-in. Span," and (2) "Effect of Specimen Size and Shape on Percent of Water Absorption in Eight Different Types of Commercial Hardboard."

Copies of these papers may be obtained from Oregon Forest Products Laboratory.

Wayne Lewis commented that recommending a particular head speed in a testing standard may have

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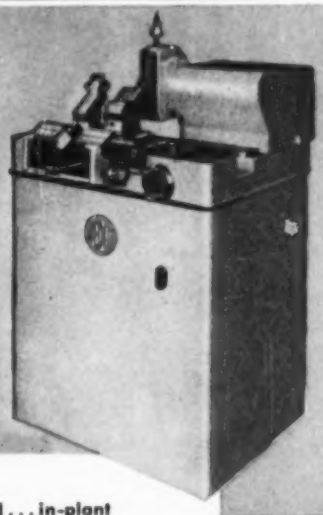

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some complications because some of the testing work in industry laboratories is done with machines that have a variable head speed from the beginning to the end of a bending test. He suggested it might be necessary to establish a definite time of completing the test after the range of deflection for a particular product is known.

Stillinger commented that his study indicated that a broad range of head speeds could be used and not significantly affect modulus of rupture values.

George Marra summarized Institute of Technology work on glueability of hardboards and distributed a report entitled "Preliminary Report on Test Methods for Evaluating Glueability of Hardboard," by G. G. Marra and J. W. Wilson.

P. L. Northcott, Forest Products Laboratory, Vancouver, B. C., suggested that a cleavage-type test might give better test results in a glueability test since a more direct and uniform stress concentration on the glue line is obtained.

120 at Pacific Northwest Meeting

The fall meeting of the Pacific Northwest Section of FPRS, held at Vancouver, B. C., was attended by 120 members of various branches of the industry and featured a tour of the B. C. Forest Products Laboratory and the Fraser River scale model development.

The afternoon technical session included three papers. C. O. Fulton, British Columbia Research Council, discussed "Wood Marine Borers of the Pacific Northwest," indicating losses suffered in log rafts and telling work being done to find an economical way to prevent shipworm damage.

F. L. Savage, Canada Creosoting Co., Ltd., in discussing phenolic bonded coast Douglas fir plywood, pointed out that complete penetrations are obtainable with no destructive effect. H. Davidson, Davidson Mfg. Co., Ltd., related his experiences with "Fiberglas Coated Plywood."

Evening talks included "Utilization," by Prof. R. W. Wellwood; "Timber Mechanics," by P. M. Cook; "Preservatives," by J. Gurd; and "Pile Driving," by P. Murray.

Great Lakes Section Holds Packaging Forum

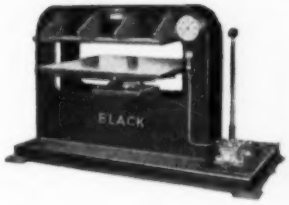
Secretary M. H. Bigelow, technical director, Plaskon Division, Libbey-Owens-Ford, Toledo, reports the Great Lakes Section held a successful and well-attended packaging forum recently at the University of Michigan, Ann Arbor. The first morning session, covering domestic packaging problems, heard a panel which included Alan Irwin, General Box Co., moderator; Max A. Carr, Cadillac Motor Car Corp., Detroit; Arthur R. Schroeder, New York Central Railroad, Detroit; and Tom C. Mason, chief, Plywood and Fabricated Products Section, Lumber and Plywood Division, NPA, Washington, D. C.

The afternoon session covered military packaging. Panel members included Eltravis H. Van Wagner, General Motors Overseas Operations, Detroit, moderator; Edward H. Borkenhagen, chief, Package Engineering Branch, Ordnance Packaging Office, Rossford Ordnance Depot, Toledo; Gerald Sheibley, preservation technologist, Ordnance Packaging Office, Toledo; Gardner G. Garlick, director of research, Protection Products Mfg. Co., Kalamazoo, Mich.; and Raymond A. Norris, chief, Packaging Division, Munitions Board Standards Agency, Washington, D. C.

Deep South Section Hears Chesley

At its fourth annual meeting, held at Louisiana State University, Baton

Presses



HYDRAULIC PRESSES

Black's hydraulic laminating press is designed for laboratory and experimental work or light production operation. It is strongly made of modern steel-plate frame construction. Variations may be had in the width of platen, vertical opening, length of stroke, and total pressure applied. Write for Bulletin 11-P.

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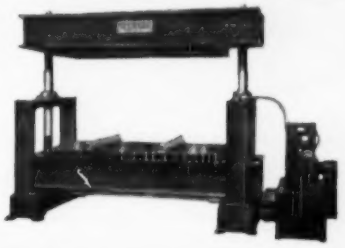
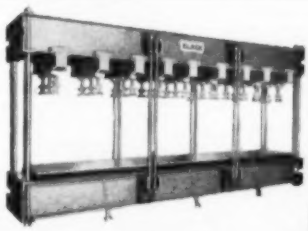
Black's electric press is fast and efficient on laminating jobs which require moderate pressure. Presses with a capacity from 36" x 36" to 48" x 144" with a 44" vertical opening are available. Its unfailing ruggedness and durability results from simple, straight-forward design with a minimum of parts. Write for Bulletin 11-E.





HAND POWERED PRESSES

Black Hand Screw Plywood or Glue Presses are made for work of any dimension. Ten sizes of sectional presses are offered from 12" to 18" in width and 18" to 102" between uprights, and which may be set side by side to form presses of any required length. All-steel presses are available in a complete range of sizes for every conceivable requirement. Write for Bulletin 11-G.

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Rouge, La., Deep South Section members heard an interesting and informative group of papers, as well as an excellent address by FPRS President Ken Chesley.

The morning session, at which Chesley spoke, was followed by an afternoon technical session. Ray Samuel of Higgins, Inc., told members about the current Higgins project of building all-wood mine sweepers for the Navy. Robert C. Musselwhite, of Southern Pine Lumber Co., spoke on laminating small timbers and dimension lumber from Southern yellow pine.

Lt. Col. R. W. Johnson, Air Material Command, said that the Air Force was depending on research groups such as FPRS to provide the answer to lightweight, durable shipping containers.

Use of treated fence posts was discussed by William C. Hopkins of the Mississippi Agricultural Experiment Station. Martin B. Applequist described current experiments with fence posts being conducted by LSU School of Forestry.

The second day's session was devoted to a symposium on quality control of wood from the forests to the mill. Moderator was William N. Darwin, TVA.

Paul R. Kramer, Texas Forest Service, Lufkin, Tex., was elected chairman, and W. L. Lear, Sawmill Division, Crossett Lumber Co., Crossett, Ark., was elected secretary-treasurer.

Rosenberry Joins FPRS Staff

Howard J. Rosenberry has been appointed editor of publications of the Forest Products Research Society, Madison, Wis. For the past year Rosenberry had served as managing editor of WOOD AND WOOD PRODUCTS. Previous to that he was an associate editor of American Lumberman for four years.

Rosenberry's experience includes time spent in the retail lumber business and a number of years spent in the glued laminated structural field.

Calender of Coming Events

January 18: Annual convention of National Association of Home Builders, Chicago, Ill., Frank W. Cortright, Executive Vice-president, 1028 Connecticut Ave., N. W., Washington 6, D. C.

January 26-30: Special course in Carbide Wood Cutting Tool Maintenance, at Wood Technology Laboratory, University of Michigan, Ann Arbor, Mich.

February (early): Pacific North west Section, at Tacoma, Wash. Secretary Walter C. Ring, Long-Bell Lumber Co., Longview, Wash.

March 5-6: Eastern Canadian Section, FPRS, Royal York Hotel, Torota, Ontario. Secretary A. R. Coleman, 4866 Wilson Ave., Montreal, Quebec.

April: Ohio Valley Section, FPRS. Two-day meeting at Louisville, Ky. Secretary Dick Burkhart, Swain Industries, Seymour, Ind.

June 15-17: Forest Products Research Society annual meeting, Memphis, Tenn. Officials for the meeting include Moss B. Christian, director of research, Chicago Mill & Lumber Co., Lallulah, La., general chairman; W. Jeter Eason, Nickey Bros., Memphis, chairman; R. D. Pauley, Weyerhaeuser Timber Co., Tacoma, Wash., program chairman; and J. R. Massey, International Harvester Co., Memphis, Tenn., public relations chairman.

Is Willins Right?

How can the wood industries protect their markets from the inroads of competitive materials? Read Henry Willins' stimulating answer on Page 26. Then, whether you agree or not, let's have your candid comment. —*The Editors.*

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SAND-O-FLEX

No matter how intricate the shape, Sand-O-Flex can sand it! As the wheel spins, flexible brushes force the garnet cloth down into crevices and over irregular shapes. It immediately adjusts itself to any conceivable contour. It cannot gouge, mar or scorch surfaces. Use it for coarse and finish sanding, portable or for heavy-duty production line jobs. Sand-O-Flex handles jobs no other sander can touch.

Sand-O-Flex requires no expensive setups. Simply mount it to a motor shaft, or any rotating spindle on your present power tools. No skill required, inexperienced help can produce beautiful finishes in a minimum of time. It carries its own supply of abrasive. Loads and feeds out by hand—no monkeying around with looping, glueing and cutting abrasive to fit. Sand-O-Flex abrasive refill cartridges are specially prepared in many grits, from very coarse to extra fine. Scored abrasive refills are supplied for operations requiring greater flexibility. Write for prices and catalog.

MODEL 650C for heavy industrial use. Casing dia. 6½"; overall dia. 10⅝"; weight 10½ lbs.; 12 brushes using 2½" wide abrasive cartridge; fits ⅝" shaft or adapters furnished to fit any size shaft. Available in right and left hand models.

MODEL 350A for production-line duty. Casing dia. 5½", overall dia. 8", weight 2¾ lbs.; 8 brushes using 1" wide abrasive cartridge; fits either ½" or ⅝" shaft or adapters supplied. This unit is shown above, sanding saw handles.

MODEL 350R for portable or stationary use. Fasten to a portable electric drill or flexible shaft for large pieces and assemblies. Casing dia. 3½"; overall dia. 5½"; weight 1¾ lbs. (loaded); 8 brushes using 1" wide abrasive cartridge; fits either ½" or ⅝" shaft, or adapters supplied to fit.

MERIT PRODUCTS, INC. 4023 Irving Place, Culver City, Calif.

NEW OFFICERS of National Lumber Manufacturers Assn.—First Vice President J. R. Bemis, Ozan Lumber Co., Prescott, Ark.; Board Chairman John B. Veach, Hardwood Corp. of America, Asheville, N. C.; President R. R. Macartney, Weyerhaeuser Timber Co., Klamath Falls, Ore.; Executive Vice President Leo V. Bodine, Washington

NLMA Demands U.S. Keep Hands Off Private Timber Management

Macartney Named President at Annual Meeting — Veach Warns Against Timber Oversupply — More Access Roads Urged — Paley Report Attacked

WASHINGTON, D. C.—The National Lumber Manufacturers Association highlighted its 1952 annual meeting, held here Nov. 11-14, by electing Oregon lumberman Ralph R. Macartney as president and demanding that the federal government keep hands off private timber management. Between 150 and 200 of the nation's leading lumbermen, representing all sections of the country, attended the four-day conclave at the Shoreham Hotel.

Macartney, manager of the Weyerhaeuser Timber Co. at Klamath Falls, Ore., replaces John B. Veach as president for 1953. Veach, president of Hardwood Corporation of America, Asheville, N. C., was elected NLMA board chairman, succeeding Corydon Wagner, vice-president and treasurer, St. Paul & Tacoma Lumber Co., Tacoma, Wash.

J. R. Bemis, president, Ozan Lumber Co., Prescott, Ark., was named first vice-president of NLMA. He is also president of the Southern Pine Association.

A main objective of the meeting was to map new strategy to offset the inroads made in lumber markets by other products. Spurred by Veach's warning that lumbermen "may face a serious challenge" from competitive products, industry representatives developed a "blueprint of action," designed to promote greater use of wood among civilian and defense consumers in the year ahead.

Veach also warned the lumber leaders that they "face the prospect of a possible over-supply of timber." He said this "points up the need for well-planned action to increase our markets."

Resolutions adopted by NLMA's 54-man board of directors called on the federal government to build more roads to speed the harvesting of over-aged and damaged federal timber, and denounced several recommendations of the President's Materials Policy Commission headed by William Paley.

NLMA directors took a special rap at the Paley proposal for federal-state controls on private timber cutting. The directors insisted that any public regulation of private timber cutting should be left entirely to the states.

At the outset of the meeting, several lumber leaders charged that the Paley proposal for federal-state controls was based on "the false philosophy that we face a timber famine." They claimed that the commission's predictions of future timber needs were "unjustifiably high" and that its estimates of present and future timber growth were "pessimistically low."

NLMA also attacked the Paley proposal for a system of federally financed forest loans and insurance. The association asserted that these matters should be handled exclusively by private banks and insurance firms. The Paley Commission proposals, made public a few months ago, are being considered by various federal agencies as the basis for possible legislation.

To step up the harvesting of deteriorating federal timber, NLMA urged that the government spend $30,000,000 annually over the next five years for construction of new timber access roads in federal forests. This is approximately triple the present outlays. The association added that the government should finance timber road construction only where private building is not feasible and that each project should be subject to a public hearing.

Other NLMA-approved resolutions, suggested by the association's Forest Conservation Committee:

1. Recommended that state forestry departments levy a service charge (based on production) for technical assistance furnished private forest operators. In this connection, NLMA rejected a Paley Commission proposal that the Agriculture Department eventually be authorized to increase its staff for this work to 2,000 field men and that the cost be borne equally by federal and state governments.

2. Recommended that forest management standards for federal lands be raised to the level maintained on intensively managed private lands.

3. Called on federal, state and private interests to step up forest insect and disease research, and to improve detection and control facilities.

4. Suggested that a national forest research advisory council be established to bolster the forest research programs of all federal, state and private agencies. NLMA opposed a Paley Commission proposal that the Agriculture Department's forest research funds be doubled, and insisted that the agency streamline these activities instead.

5. Proposed that state forestry departments encourage private operators to plant more seedlings on idle lands, but insisted that the states should boost their charges for seedlings to the extent that state and federal subsidies could be eliminated wherever state laws permit.

6. Demanded that the matter of property taxation and special forest tax laws be left entirely to the states.

Markets

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of November 29, 1952. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

Note: Each price change from preceding issue is marked by an asterisk (*).

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on hand-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M', on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	155	110	62
6/4-in.	170	120	67
8/4-in.	180	140	70

BASSWOOD

4/4-in.	160	125	80
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in.	125	100	55
6/4-in.	140	110	60
8/4-in.	167	127	72

CHERRY

	FAS	No. 1C	No. 2C
4/4-in.	220*	150*	90*
6/4-in.	240*	170*	95*
8/4-in.	250*	180*	100*

RED GUM—PLAIN

4/4-in.	200	150	70
6/4-in.	230	170	75

RED GUM—QUARTERED

4/4-in.	220	165	75
6/4-in.	250	190	90
8/4-in.	260	200	95

SAP GUM—PLAIN

4/4-in.	105	85	42*
6/4-in.	122	102	45
8/4-in.	160	140	

HACKBERRY

4/4-in.	110	90	60
6/4-in.	120	100	70
8/4-in.	135	110	75

SOFT MAPLE—WHAD

4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80

RED OAK—PLAIN

4/4-in.	175	100	62
6/4-in.	190	130*	
8/4-in.	200	140	

WHITE OAK—PLAIN

4/4-in.	180	115	62
6/4-in.	200	140	
8/4-in.	205	145	

PECAN

4/4-in.	110	90	40
6/4-in.	130	110	60
8/4-in.	155	130	65

POPLAR—PLAIN

	FAS	S & S	No. 1C
4/4-in.	165	155	125
6/4-in.	185	175	140
8/4-in.	205	195	150

SYCAMORE—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	115	95	60
6/4-in.	125	105	60

TUPELO— PLAIN
TUF TEXTURE—DEEP SWAMP

4/4-in.	105	85	40
6/4-in.	122	102	45
8/4-in.	160	140	

WILLOW

4/4-in.	130	110	60
6/4-in.	142	122	67
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of hand-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough air dried & graded in accordance with

Smooth Dovetailing
WITH
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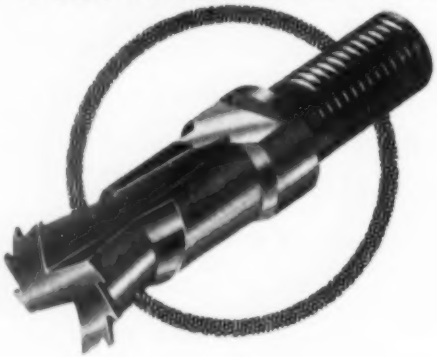

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EQUIPMENT

Utilize every bit of scrap by turning it into extra dollars with M & M hogging equipment. M & M machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Send us your scrap problem and we'll show you how M & M hogging equipment can solve it.

MITTS & MERRILL
1018 South Water • SAGINAW, MICHIGAN

NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	170*	160*	110	67
6/4-in.	190*	180*	122	72
8/4-in.	200*	190*	147	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	80
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH

				No. 2C
4/4-in.	145	135	110	65
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	230	220	150	80
6/4-in.	245	235	160	85
8/4-in.	250	240	165	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY

4/4-in.	220	210	150	90
6/4-in.	240	230	170	95
8/4-in.	250	240	180	100

CHESTNUT

	FAS	No. 1C	FAS WHND	1C & B WHND
4/4-in.	165	115	135	125
6/4-in.	170	120	140	130
8/4-in.	175	125	150	140

HICKORY

	FAS	FIF	No. 1C	No. 2C
4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	165	155	90	60

HARD MAPLE

4/4-in.	190	180	125	80
6/4-in.	250	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE

4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN

4/4-in.	185	175	120
6/4-in.	200	190	135
8/4-in.	215	205	145

WHITE OAK—PLAIN

4/4-in.	200	190	125
6/4-in.	220	210	145
8/4-in.	225	215	155

WHITE OAK—WHND

	FAS	FIF	C & B	No. 1C
4/4-in.	115	105	90	85
6/4-in.	140	130	120	110
8/4-in.	150	140	125	115

YELLOW POLAR—PLAIN

	FAS	FIF	No. 1C	No. 2A
4/4-in.	210	200	135	80
6/4-in.	215	205	145	93
8/4-in.	225	215	155	..

POPLAR SQUARES

	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS	FIF	No. 1C	No. 2C
	6' & up	6' & up		
4/4-in.	370*	320*	180*	75*
6/4-in.	395*	345*	215*	90*
8/4-in.	415*	365*	235	95*

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD

4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH

4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM

4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM

4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE

4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82

SOFT MAPLE

4/4-in.	155	120	72
6/4-in.	170	130	82
8/4-in.	185	140	90

RED OAK

4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	85

*Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

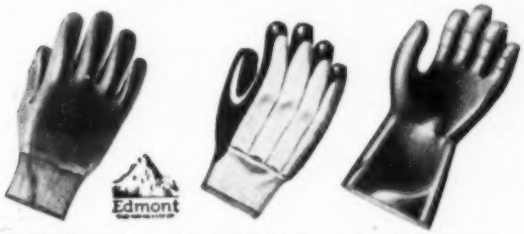
These gloves are JOB-FITTED for the woodworking industry

For a sure wet-or-dry grip on rough logs,

for splinter-proof handling of sawed lumber or plywood,

for liquid-proof protection in dipping solutions, solvents and adhesives,

one of these Edmont coated work gloves exactly fits the operation and will give you up to 10 times longer service than ordinary canvas gloves.



No. 660W: Rough textured natural rubber coating gives safe grip on slippery logs, wet or dry.

No. 93: Splinter-proof palm coated with tough, reinforced neoprene (NEOX). Ideal for handling plywood.

No. 312: Special plastic. Outwore ordinary neoprene 10 times (40 hrs. vs. 4 hrs.) dipping wood frames in sealer.

Make this free job-test: Send a brief description of your operation and materials handled. We will recommend the correct job-fitted glove and forward samples, without cost, for your testing. Address

Edmont Manufacturing Co.
1268 Walnut St., Coshocton, O.

World's largest maker of coated industrial gloves

Edmont JOB-FITTED GLOVES

HARDWOOD FURNITURE DIMENSION

•

Solid & Glued
Cut to Size
Run to Detail

•

Superior Quality, Ample Capacity
All Commercial Species

•

BRADLEY LUMBER CO. of Arkansas
WARREN, ARKANSAS

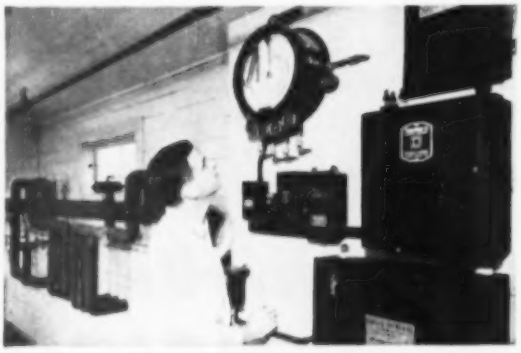
We Recommend
Standard DRY KILNS

"to anyone desiring the ultimate in precision, low-cost drying of lumber."

Frank Hungerford, Vice President
S. R. HUNGERFORD COMPANY
Memphis, Tennessee

Mr. Hungerford writes: "Our firm last year moved into a new plant to give us the increased capacity necessary to satisfy the demand for solid mahogany by Hungerford. The first installation we made on the new property was a dry kiln installation, and we chose STANDARD as representing everything we desired in a dry kiln. In working with solid mahogany, we felt that we must have the best equipment available. We would recommend Standard Dry Kilns most highly to anyone desiring the ultimate in precision, low-cost drying of lumber."

Mr. Hungerford is referring to Standard's well-known Internal Fan Kiln with direct driven fans.



The heat and humidity of Standard's Internal Fan Kiln are automatically controlled through this special Multizone Recorder Controller. Both ends of the Kiln are controlled as separate units.

WE SELL THE FIRST *Standard...*
Performance SELLS THE REPEATS!

Write for illustrated Standard Catalog

Manufacturers of Internal Fan Kilns

STANDARD
Engineers and Manufacturers Since 1857
DRY KILN COMPANY

P. O. BOX 5708 • INDIANAPOLIS, INDIANA

Wood Puzzlers

This department is designed to help find answers to your production and sales problems. Let us know what information you need. Experience has shown that other readers may be able to help you.

82–Saw Handles

We are interested in finding a manufacturer who can produce complete saw handles for carpenter saws and cross cut saws. (Mich.)

83–Machine for Producing Wood Chips

We have several inquiries for the names of manufacturers of machines for producing wood chips and shavings to be used for barn bedding and garden mulching. We assume that our inquirers want a small individually owned outfit that might be operated by a farm tractor. (Mo.)

84–Black Locust Timbers

Can you advise us where we can find a source of supply for Black Locust timbers cut from logs 9 in. or 10 in. in diameter, preferably in the eastern part of the country? We will require carload quantities. (Ill.)

85–Dogwood Shuttle Blocks

We are in need of a market for dogwood shuttle blocks 13½ in x 1⅞ in x 1⅝ in. These blocks are slightly imperfect for our use, but would make an excellent wood for turnings, dowels, etc. (N. C.)

86–Tool for Boring Square Hole

We have been trying for some time to locate a tool which could bore a square hole symmetrically through a block of wood. The length to be bored would be up to 100 in. and the square hole ranging in size from 1⅛ in. to 2⅜ in. (Mass.)

87–Hardwood Boxes

We are interested in locating a manufacturer who can produce hardwood boxes, approximately 5 in. x 5 in. x 3 in. wide. The stock is to be about 3/16 in. (Ind.)

88–Wood Panels One Foot Square

We are assembling a display room showing all the various types of interior woods and wood finishes. Can you help us find a source for wood sample panels completely finished in various effects, in sizes approximately 1 ft. square? (Mo.)

89–Drag Saw with Electric Motor

We are in the market for a drag saw to run with an electric motor. We require a 7 ft. saw with a 10 in. blade. We would like to have a power lift on the saw, and a power roller to feed logs up on saw. (Va.)

HOW TO

MEASURE MOISTURE

MOST ACCURATELY... MOST EASILY

For all-purpose duty—

TAG MOISTURONIC METER

Here's the truly all-purpose moisture meter—TAG Model 8008—which provides both a direct-reading scale from 7 to 30% wood moisture and also a high scale with calibration from 30 to 150% for comparative purposes. And for added convenience, the low scale is marked for reading moisture in plaster. It's dependable, of course—like all Tag and Weston instruments. It's as easy to operate as top-rank engineering intelligence has been able to make it. It weighs only about 10 pounds—has a sturdy, comfortable carrying strap. Fine quality in appearance as well as performance. Both battery and A-C types. Write today for Bulletin TT10 giving full description and technical details.

For utmost portability—

TAG MIDGET MOISTURE METER

The Tag Midget Moisture Meter brings new convenience to moisture testing. Extremely compact, it weighs less than 4 pounds—yet it provides true Weston-Tag accuracy and dependability. Operates on standard dry cell. Instantly indicates per cent moisture. Is calibrated for wood and plastic; can also be adapted for other materials. For details, write for Bulletin 1295. 65

TAG TAGLIABUE INSTRUMENTS DIVISION WESTON

WESTON ELECTRICAL INSTRUMENT CORPORATION

617 Frelinghuysen Avenue, Newark 5, New Jersey

"TAG" Automatic Controllers Record Temperature, Pressure

Pressure, vacuum or temperature can be automatically regulated and recorded with the Pneumatic Recorder-Controllers produced by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. These devices maintain conditions for which they are set by varying control line air pressure, which operates a diaphragm valve to regulate flow of fluid (gas, steam, liquid) to the equipment being controlled. At the same time, the instrument continuously records actual temperature or pressure on a circular chart.

Operating on an air supply of 18 p.s.i., TAG Recorder-Controllers handle temperatures between −100°F. and 1000°F., vacuum as great as 30" mercury, or pressures up to 7500 p.s.i.

"TAG" Glass Thermometers Provide Lasting Precision

Accurate general purpose and laboratory thermometers are supplied by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. Available armored or unarmored, these individually etched stem thermometers indicate temperatures as low as —150° or as high as 950°F. in the standard grade, and values as low as —30°F. or as high as 750°F.

in the extreme precision grade. Limited range thermometers graduated to 1/100°C., for calorimeter use, are also standard.

In addition to individual instruments, matched sets of A.S.T.M. Testing Thermometers, with overlapping ranges spanning temperatures from —36°F. to 760°F., or —38 to 405°C., are available in convenient simulated leather cases.

Weston Metal Thermometers Combine Precision, Stamina

Accurate, reliable temperature indication is given by the all-metal Thermometers manufactured by Weston Electrical Instrument Corp., Newark 5, N. J. These sturdy instruments are designed for utmost legibility and are constructed for use under severe operating conditions.

Weston All-Metal Thermometers can be supplied with the stem projecting from the back or from the bottom, top or side at any angle. Stem lengths from 2½" to 24" are standard; stems as long as 72" are available. A 3" dia. head provides a scale 6" long. Temperatures as low as —100°F. or as high as 1000°F. can be indicated. The "Max-Min" type records highest or lowest temperature since resetting. Contact making type closes an electrical circuit at an easily set value. Special models are also available.

New and Improved Products

High Frequency Generator

Just announced is a new automatic power control Thermatron 20 KW High Frequency generator, together with a batch-type press. Specially designed for high production edge bonding and said to be the latest development in electronic heating, the Thermatron unit is designed to "mastermind" the complete job. Its large power capacity and automatic controls are proving themselves in accommodating the wide variety of loads run at the Sensenich plant.

Under actual production conditions it has been found that Thermatron's automatic power control has reduced production time by at least 33-1/3% on runs of eight quarter stock and larger, where the glue line area is extremely large. Of course ,in the handling of small stock where much less power is required, time conservation through use of the automatic controls is not so great.

For complete information, write Thermatron Division, Radio Receptor Co., Inc., Dept. W-P, 251 W. 19th St., New York 11, N. Y.

NEW BAHNSON UNIT HUMIDIFIER DEVELOPED FOR WOODWORKING PLANTS

The new Bahnson Type E Humidifier is so low in first cost, so simple to install, and so economical to operate that any woodworking plant can afford adequate humidity control. Type E Units are completely self-contained—do not require pumps, ducts, compressed air, steam or drain lines. Units are suspended from the ceiling, then connected to water and electrical supply. These high-capacity, automatically controlled humidifiers are only 18" in diameter and are operated by fractional-horsepower motors. Single units handle several thousand cubic feet of room volume at average conditions.

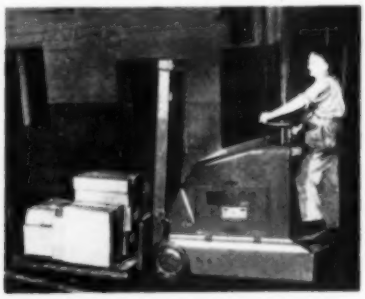
Humidity control means moisture content control to the woodworking industry. Winter time is dry air time inside heated buildings—and dry air can rob wood of the moisture it needs for stability during production and use. A reasonable investment in Type E Humidifiers, or Bahnson Type H or L Centrifugal Humidifiers for larger spaces, can mean great savings to wood processors. You can get complete information on humidification and on Bahnson equipment by writing for a copy of our free booklet "HUMIDITY CONTROL IN THE WOODWORKING INDUSTRY."

FOR TRULY DEPENDABLE LOW COST HUMIDIFICATION

Bahnson Company
ENGINEERS AND MANUFACTURERS
WINSTON-SALEM, N. C.

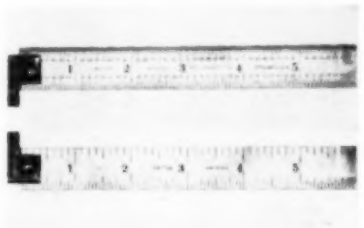
"Stand-Up" Fork Truck

An electric "stand-up" fork truck, the Stoway, which can operate within its own length, has just been announced. The Stoway is designed for warehousing and freight terminals where close quarters and narrow aisles demand high maneuverability and where the driver must continually mount and dismount. It has a capacity of 2000 pounds at 24-in., 2500 pounds at 15-in., and 1650 pounds at 30-in. Descriptive literature may be obtained by writing to the Clark Equipment Co., Industrial Truck Division, Dept. W-P., Battle Creek, Mich.



New Hook Rules

The L. S. Starrett Co., Dept. W, Athol, Mass., offers a complete line of hook rules to meet the demands of the woodworking industry. A hook rule combines the precision of a steel rule with the convenience of the hook feature which permits taking rapid measurements of any dimension with



The Ralph L. Smith Lumber Co.

has Consolidated its Remanufacturing Facilities at

ANDERSON, CALIFORNIA

Now a Thoroughly Modern and Integrated Plant Producing

MOULDINGS – INTERIOR TRIM – VENETIAN BLINDS

New Mattison Moulders — Turner Rip & Resaws — Jones Trim Tables Years of Experience have given us the "know how" in moulding production

FRAMES & JAMBS

All of the Modern Machinery from Pondosa Pine Co. of Elgin, Oregon and several of the key personnel have been moved to Anderson, assuring the same high quality and preci ion manufacturing

GLUED PANELS AND CUT STOCK

Gillespie Electronic — Plycor & Clamp Carrier Glueing Equipment makes it possible to furnish unexcelled panels — Specializing in Furniture Parts — Drawing Boards — Luggage — etc. Shaping to pattern on Onsrud Automatic Shaper and sanding to a smooth finish on Yates Sander. Turning lathe work performed on Mattison Wood Lathe.

BOX FACTORY

High Quality Shook, both Calif. Fruit & Vegetable And Industrial, is being Produced in the Factory

Our Own Large Timber Supply makes us a Dependable Source of Supply

The Ralph L. SMITH Lumber Company

WESTERN PINE ASSOCIATION WPA

ANDERSON, CALIFORNIA

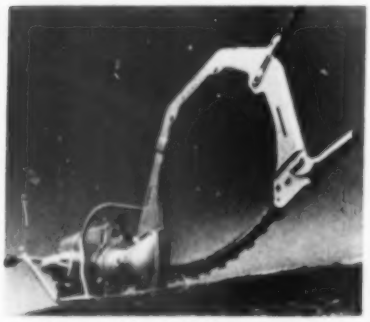
GENERAL SALES OFFICE AT THE MILL

assurance that the end of the rule is precisely aligned with the work.

Starrett Hook Rules are available in lengths from 4 to 72 inches in standard or narrow widths. No. 419 (illustrated) is available graduated on one side in 8ths and 16ths, and in quick-reading 32nds and 64ths on the other.

Bow Saw

A new chain saw design is offered in one tool, a free-flow bow saw announced by Henry Disston & Sons,

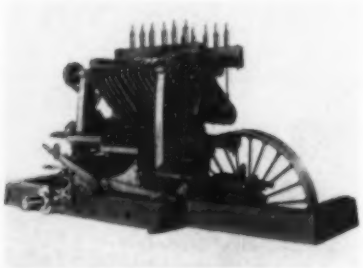


Inc., Dept. W-P, Unruh & Milnor Sts., Philadelphia, Pa. The combination of the features in a nine-horsepower unit with a 25-inch bite is said to ease the labor of sawing.

The free-flow feature is designed to speed up cutting and reduce friction at the same time. Other features simplify maintenance and make it possible to buck close-lying logs without the added work of first moving them. The new saw is said to cut at the rate of better than one inch a second on 17-inch seasoned Beech logs.

Horizontal Band Resaw

Several improvements in the 62-in. Horizontal Band Resaw have recently been announced by the manufacturer. They include heavy duty Timken tapered roller bearings on the 62-in. diameter wheels and a 5-speed gear box on the feed drive mechanism replacing a variable speed friction drive. This provides a positive drive for the



feed mechanism with a wide range of speeds.

For complete information write to McDonough Manufacturing Co., Dept W-P, Eau Claire, Wis.

"Plug-In" Humidity Controller

The Abbeon Supply Co., Dept. W, 179-15 Jamaica Ave., Jamaica 32, N. Y., announces that its new "Plug-

In" Humidity Controller is now coming off the production line after exhaustive laboratory and field tests. This new Humidity Controller is said to fulfill the need for a simple automatic humidistat control to operate

With extended table at right and removable roll-table at left. No. XJW.
Tannewitz "XJ"
FINEST THING IN MITRE SAWS!
Choice of 5 different tables enables you to obtain a mitre saw that matches EXACTLY your production requirements. Does away with awkward working conditions, steps up production, and saves time and money. Nothing like it. Moderately priced. Write for Bulletin XJ.
Sliding left section top and extended table at right. No. XJSW.
Standard solid table, (No. XJ) or sliding left section. No. XJS.
THE TANNEWITZ WORKS
GRAND RAPIDS, MICHIGAN
Extended table at right — extended sliding table at left. No. XJSW — J-430.

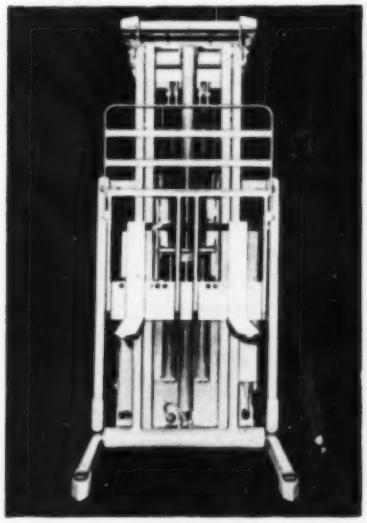
electrically powered humidifiers and dehumidifiers.

This Control operates in much the same way as a room type thermostat. All that is necessary is to hang the Control on the wall and turn the dial to the percentage of relative humidity desired. When used as a dehumidifier control, if the humidity rises above the setting, the control will turn on the dehumidifier. When the humidity falls below the set percentage of relative humidity, the deuhmidifier will automatically shut off:

Adjustable Base Forks

Adjustable base forks for handling pallets of various widths have been introduced by The Raymond Corp. of Dept. W, 24799 Madison St., Greene, N. Y., as optional equipment for its line of straddle-type electric tiering trucks.

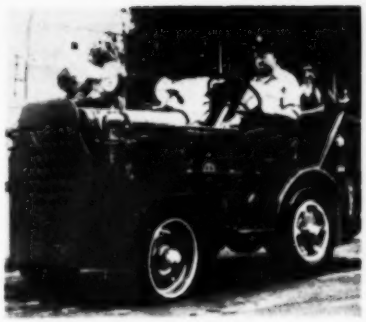
The new adjustable forks permit



Raymond trucks to handle pallets varying in width from 32 inches to 48 inches. Made of rugged welded steel sections, the forks are hinged to the main frame and adjusted manually by a screw arrangement. They are being offered with all straddle-type Raymond trucks of 2,000 or 3,000 lb. capacity having standard load wheels.

Plant Fire Truck

A unique plant fire truck that can easily negotiate narrow factory aisles has just been announced by the Chevrolet Division of General Motors, Dept. W, Baltimore, Maryland. They equipped a Model C7-21 Clarktor mule with an Ansul S-150 dry chemical fire extinguishing unit behind the driver's seat, and also placed two An-



sul 20-B hand extinguishers on each front fender. The truck also carries a 20-foot extension ladder, and MSA Chemox breathing apparatus, rubber boots, rope, fire axes, siren, headlights, a powerful portable searchlight, a 50-pound carbon dioxide cylinder and a small vaporizing liquid type extinguisher.

Wood Painting Machine

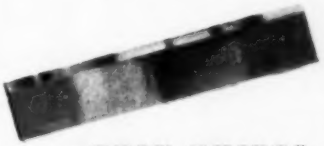
A new machine for painting wood or other materials up to 2 inches thick and 30 inches wide is now being marketed by Potdevin Machine Co., Dept. W, Teterboro, N. J. Paint coatings are uniform over the entire painted area and thickness of coating can quickly be adjusted from either side of the machine. Handling materials from ¼" thick up to 2" thick

EKSTROM, CARLSON

CASINO

Stress-Relieved

HIGH SPEED SHAPER STEEL



and THIN KNIVES

These same important principles of Uniformity apply to the outstanding line of Ekstrom, Carlson Thin Knives as well.

UNIFORMITY is the outstanding and valuable quality of Casino Shaper Steel. Uniform Material assures maintenance of performance from order to order. Uniform Accuracy, achieved through precision grinding and finishing by highly skilled men, insures maintenance of fit in all tools and machines. Uniform Hardness . . . and careful relief of internal stresses . . . insures not only top-quality cutting, but also maximum safety under strenuous conditions. Write for our New Catalog showing all Ekstrom, Carlson Woodworking Tools.

ECCO

EKSTROM, CARLSON & CO.

1400 RAILROAD AVE., DEPT. W-7, ROCKFORD, ILL.

MACHINERY AND TOOLS SINCE 1904

is accomplished by simply setting an indicator to the required setting to coat material of any thickness.

The machine is provided with an explosion proof motor. A Reeves variable pulley drive permits the speed of the wood painting machine to be altered to suit the various types of materials being coated. The feed tank is removable to facilitate cleaning.

Two-color Spray Finish Technique

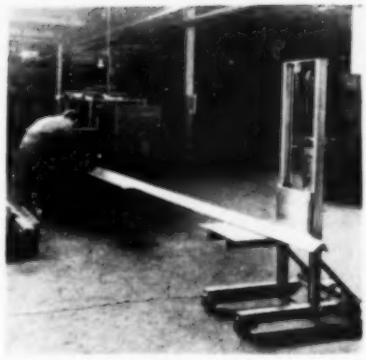
Color magic can be performed easily and economically, it is claimed, using a new two-color spray finishing technique on Weldtex, the striated plywood panel. Offering possibilities for unusual wall and ceiling treatments, showroom fixtures and advertising displays, the new finish for Weldtex causes the panels to change color depending upon the position of the viewer.

The special dual color treatment, can be created easily by first spraying the entire panel with one of the desired colors. After the first color is dry, a second color is sprayed at right (90 degrees) angle to the direction of the grooves, and at about a 30-degree angle with the plane of the panel.

Using this method, the second color strikes only one side of the grooves or striations thereby creating the surprising dual color effect. Detailed finishing instructions together with an actual sample of a dual color panel can be obtained from the manufacturer, United States Plywood Corp., Dept. W, 55 West 44 St., New York, N. Y.

Portable Elevator

The Barrett "5-Hundred" portable elevator has been designed for a more convenient method of work holding and positioning jobs involving long or awkward work pieces. The elevator has a lifting capacity of 500 pounds and holds a piece or assembly at the exact height desired and can be quickly adjusted during the operation.



Portable elevators may be used for various work holding applications such as drilling, punching, sawing and welding jobs. Other applications are stacking materials and goods to gain floor space, serving storage racks, loading and unloading motor trucks, handling barrels, drums and cable reels, die handling and overhead maintenance. Bulletin 5131 on standard model portable elevators will be mailed upon request by Barrett-Cravens Co., Dept. W, 4609 S. Western Blvd., Chicago 9, Ill.

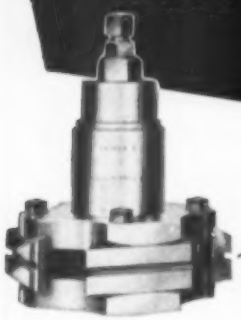
Quick Acting Fixture Clamp

A new quick acting fixture clamp, incorporating the Saxton principle of clamping, has just been introduced

SHIMER HEADS GIVE YOU TOP PRODUCTION . . . clean, accurate, fast cutting!

THE SHIMER HIGH-SPEED VISE GRIP MATCHER HEAD

cuts across the entire width of the pattern!



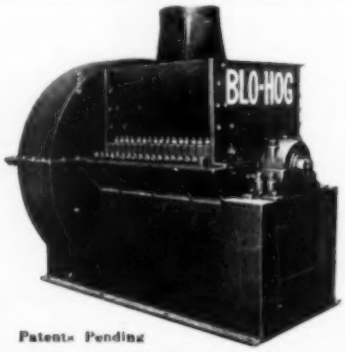
AVAILABLE IN FOUR OR SIX-BIT MODELS with milled-to-pattern bits for high-speed matching, jointing and shiplap production!

There's a Shimer Head or Cutter for every cutting problem, accepted for their dependability and long, profitable service, trusted and approved for their versatility! Shimer products are custom-built for top production and lowest job costs . . . with deliveries you can depend upon to meet your production schedules!

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!

SAMUEL J. SHIMER & SONS, Inc.
70 RACE STREET ★ MILTON, PENNA.

SHIMER



Patents Pending

MONTGOMERY BLO-HOG

Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

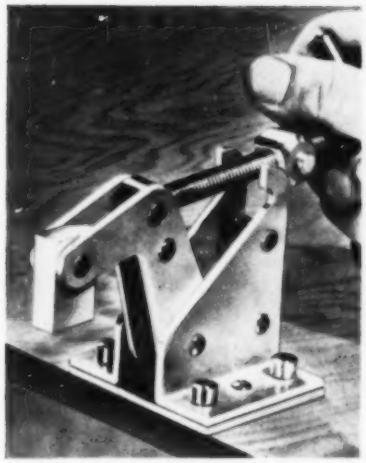
Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

Write for bulletin and details.

Jacksonville Blow Pipe Co.

Jacksonville, Florida



by Centinela Industrial Supply Co., Dept. W, 11930 Inglewood Ave., Hawthorne, Cal. The new unit is ideally suited for all milling, drilling, riveting and assembly fixtures. A twist of the wrist removes trunion from the retaining hook in mounting bracket, and the full open position gives unobstructed vertical clearance for removal of finished work. The powerful gripping capacity of the new clamp combined with its non-flexing design is said to eliminate chatter during milling or intermittent cutting operations.

Hardboard Plant

Continued from Page 25

felter and then distributed to the top of the felter chamber. The fibers fall to the floor of the felter, giving much the effect of a heavy but gentle snowstorm.

The floor of the felter is a moving belt synchronized with the output of the grinders. As the mat emerges from the felter, it is 6 in. thick, depending upon the thickness and physical properties desired in the finished board. A pre-compressor brings it down to about 3 in. before the mat is cut to desired lengths by a traveling saw.

The press loader is designed to load every other opening on both the up and down strokes. This eliminates waste motion and power, shortening the cycle required for loading the press and returning the loader to the correct position for receiving the next batch of mats. The press is a conventional 20-opening hardboard press except for a greater daylight opening between plates.

The mats are received on a conveyor-type wire cloth which carries them onto the press plates. Following curing time, which runs from 8 to 12 minutes, the sheets are ejcted from the press by means of the wire cloth which remains under the mat during pressing to facilitate venting of moisture.

Moisture content of the board is brought up to 5 to 7% in a conventional tunnel-type humidifier. The panels are then graded by hand before being packaged for shipment.

The plant requires only 30 men to produce 2,500,000 sq. ft. monthly.

Features of New Hardboard Produced at Anacortes Plant

High shock and impact resistance

"Hatband" flexibility in 1/8 in. thickness

Standard hardboard stiffness and rigidity in greater thicknesses

Made solely from solid old-growth Douglas fir

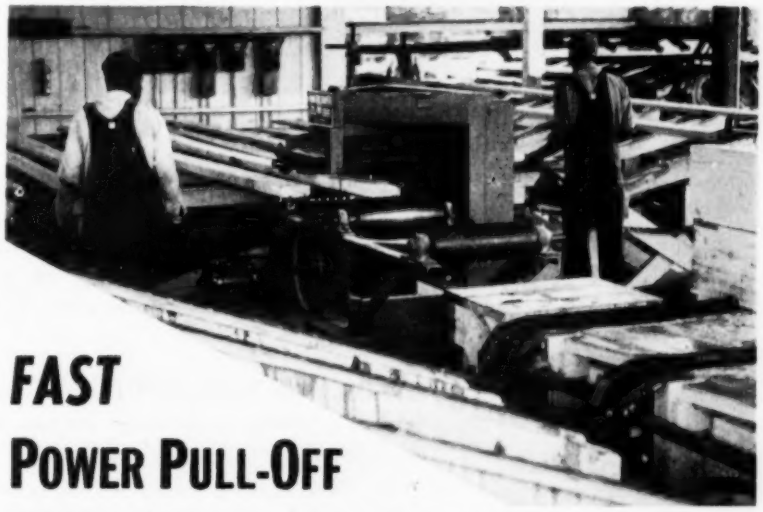
Precision quality controlled

Hard polished surface

High paintability

Available in 1/8, 3/16, 1/4 in. thicknesses

Cut Sorting Cost!



FAST POWER PULL-OFF With Moore Electric Swede

The grader draws boards he wants pulled slightly out of line with the others—the Moore Electric Swede does the rest!

- ★ *Quickly pulls only the desired boards, even when closely spaced*
- ★ *Handles a range of thicknesses—easily adjusted*
- ★ *For rough or finished lumber*
- ★ *Pays for itself in a remarkably short time*

Practically every mill can use the "Electric Swede" profitably. Write for information.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE FLORIDA · BRAMPTON, ONT. CANADA · VANCOUVER, B. C. CANADA · NORTH PORTLAND OREGON

New Catalogs and Literature

American Pattern Files

Data on a complete line of American Pattern Files for industrial use has been recently made available. Fully illustrated, the folder pictures numerous industrial files and gives valuable information regarding the use and application of each particular type. Included among the many standard files in this literature are pitsaw, tapered, pillar and warding files. American Pattern Rasps and File Handles are also listed.

Complete ordering information is provided along with a handy table giving the sizes and dimensions of all DoAll Files and Rasps. For a copy of this folder, write The DoAll Co., De Plaines, Ill., and request Bulletin 51-801.

Moisture & Fungus Resistant Varnish

An informative brochure has just been released on Tuf-On No. 747-S Moisture & Fungus Resistant Varnish, a new development designed for the treatment of communications, electronic and associated electrical equipment. The material is intended for normal commercial purposes, as well as specification requirements. Tuf-On No. 747-S conforms to the new Specification MIL-V-173A which supersedes JAN-C-173 Specification. The brochure outlines usage, application methods, safety precautions, testing data, drying time details, and determination of coverage by fluorescence, etc. The brochure may be obtained by writing to the Brooklyn Paint & Varnish Co. Inc., Dept. W, 50 Jay Street, Brooklyn 1, N. Y.

...FROM CORN CRIBS... TO CHURCH PEWS

CELLUMENT is the FIRST CHOICE ADHESIVE

CORN CRIBS

KITCHEN CABINETS

INSIDE and OUTSIDE DOORS

CHURCH, THEATRE and AUDITORIUM FURNITURE

CONSTANT EXPOSURE to blizzards and rain, sub-zero cold and blazing hot sun, requires a glue with unusual resistance to extremes of weather. That's why manufacturers of corn cribs use Cellument.

UTILITARIAN PRODUCTS that are subject to constant hard usage require a glue that is durable and versatile. That's why makers of kitchen cabinets use Cellument throughout, and especially for gluing plastic laminates such as Formica to counter tops.

BEAUTY is more than skin deep and that's why makers of millwork, interior and exterior doors, church furniture, etc., use Cellument. They know that the uniform, high quality gluing results they get enhance the beauty of their products. *Investigate the advantages of using Cellument to glue your products.*

• *Write Today for Catalog and Data Sheet 401*

MONITE WATERPROOF GLUE CO.

1072 Monite Building, Minneapolis, Minnesota, U.S.A.

Leather Belting

Newly released by the Graton & Knight Co., Dept. W, 358 Franklin St., Worcester 4, Mass., is a 40-page catalog and manual featuring leather belting. The theme is More Production-Power, a subject that is particularly timely to industries requiring 'round the clock production without costly shut-downs.

In this new catalog, such industries will find the proper belt for every installation, how to get longer life from belting, how to make a belt endless—plus the usual listing of sizes, prices and specifications, all indexed for quick reference.

Cost Controls

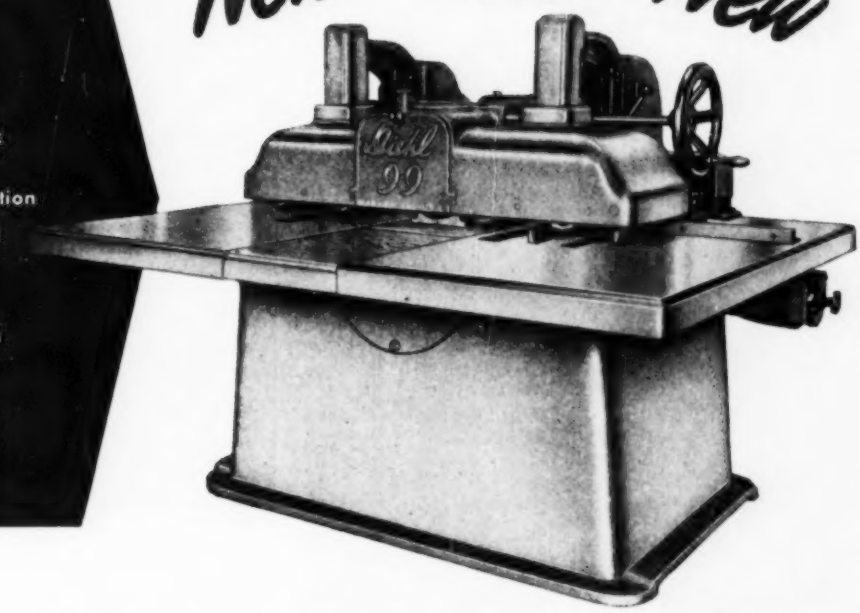
A practical handbook is now available on the subject: "Accounting and Cost Controls in the Hardwood Conversion Industry", by Vincent E. Noltemeyer. It explains quickly, clearly and understandably how to keep accurate current inventory controls. The book explains how to keep cost records at each operation so that actual per unit costs are available immediately upon shipment. Write to the author at: Dept. W-P, 4601 Almond Ave., Louisville 9, Ky.

New House Organ

The G. M. Diehl Machine Works, Inc., Dept. W, Wabash, Indiana, has released the first issue of a completely new "Diehlcrafter", Diehl's magazine-type house organ. The new publication marks a distinct change in both size and format from the old one. The magazine shows—through pictorial articles—the latest production methods of leading precision woodworking plants throughout the country. Featured in the new issue are manufacturers of doors, moulding, plywood, veneers, bedroom and dining-room furniture.

1. 8 Powered feed rolls
2. No arbor or table adjustment
3. Throat plate cutting attachment
4. Safe double kick-back guards
5. Rigid—free from vibration
6. Pre-lubricated, sealed bearings
7. Enclosed gear cases
8. 8 speeds, 50-180 FPM (faster if desired)
9. Standard motors
10. Designed for carbide-tipped saw blades

New New New



Better multiple ripping . . faster . . easier . . safer with the New Diehl #99 Multi-Rip Saw

● *Completely New Design!* . . . The new Diehl #99 is the finest achievement in modern gang-rip saw development . . . the latest addition to the Diehl line of precision production woodworking machinery.

The new Diehl #99 Multi-Rip Saw is unusually compact and sturdy, and incorporates special features which mean greater safety, reduced changeover time and less maintenance. Rigid overall construction assures accuracy – precision – freedom from vibration – and high production.

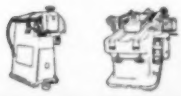
With the new #99, it's no longer necessary to raise the arbor assembly or the table assembly—instead, the pressure roll housing is quickly, easily adjusted with a single control at operator's end of machine. The specially designed saw arbor is mounted in a fixed position in three precision ball bearings. The saw gang, mounted on a sleeve, can be easily changed and a new set up quickly made due to the throat plate cutting attachment developed for this machine.

With *eight* power driven feed rolls, four above and four below, smooth positive feed is assured. The new #99 feeds at eight speeds in two ranges . . . from 50 to 180 feet per minute (faster if desired). Sealed, pre-lubricated ball bearings virtually eliminate maintenance.

Designed for the ultimate in safety, the #99 has double kick-back guards, eliminating dangerous kick-back.

For detailed information on how the new Diehl #99 Multi-Rip Saw can help *you* increase production—*and profits*—write, wire or phone The G. M. Diehl Machine Works, Inc., Wabash, Ind. Ask for Bulletin No. MRS-1052.

. . . Where Precision Craftsmanship is Honored . . .



On the Banks of the Wabash

THE G. M. Diehl MACHINE WORKS, INC.

WABASH, INDIANA • U. S. A.

with a ST. JOE STAPLER

ST. JOE
COMBINATION
BERRY BOX
MACHINE

5000 to 8000 berry boxes per day stapled on a ST. JOE Combination Berry Box Machine.

Production records come easy with ST. JOE equipment. ST. JOE Staplers are sturdily built for high speed production and will give continuous performance year after year. Check with ST. JOE Machines when your requirements call for shipping containers for fruit, vegetables or industrial merchandise. Backed by seventy-six years of experience in the stapling field, ST. JOE Staplers have always set records for speed, ease of operation and economy.

90% of all Berry Boxes are produced on ST. JOE Staplers.

Write for Bulletin No. QPC.

★ *Our 76th Year* ★

ST. JOE MACHINES, INC.
ST. JOSEPH, MICHIGAN

Patent Digest

Chair Back

J. S. Burdick (to Shaw-Walker Co.) U. S. 2,602,493, July 8. Composite metal-wood chair back comprising a tubular metal frame with wooden members connected thereto.

Veneering Apparatus

L. C. Quimby and A. Quimby, Jr. (to Bingham Machine and Engineering Co.). U. S. 2,603,004, July 15. Continuously conveying a strip of green veneer, drying under tension sufficient to prevtnt substantial warping and insufficient to cause damage, and increasing tension as drying progresses.

Wood Sawing

J. D. Stewart (to James A. Key). U. S. 2,603,248, July 15. Wood sawing attachment for automobiles operated by means of belt and pulley attachment from the power plant of tht automobile.

Wood Heel Cupping Machine

W. J. Grenier U. S. 2,603,257, July 15. Wood shaping machine comprising a rotating cutter, work-holding clamps, a clamp carrier disposed parallel to the cutter, means for opening and closing clamps, and means for rotating the clamps past the cutter.

Excelsior Machine

E. A. A. Humelin. U. S. 2,605,793, Aug. 5. An apparatus for making excelsior.

Log Loading

U. A. Morres. U. S. 2,603,365, July 15. Log loading truck including a log carrying body, a chassis with a mast having a pulley mounted on the upper end and cable traction means on the chassis for elevating logs onto the truck.

Plywood Tubes

C. Kramer (to Mengel Co.). U. S. 2,603,579, Juluy 15. Apparatus for forming a stack of sheets of wood with adhesive therebetween into a tube, comprising a mandrel rotatable about an axis and adapted to have sheets wrapped thereon, and a plurality of mobilt pressure units.

Wood Treating

J. A. Vaughan and J. C. Vinson (to Southern Wood Preserving Co.) U. S. 2,603,588, Juluy 15. Apparatus for cleansing and dehydrating used oily wood preservative comprising a settling tank of very large horizontal area compared with its capacity and having a zig zag channel adapted to be filled with a mixture of water and oily preservative; a catch basin, a spray head, a drain conduit, and a discharge conduit

FESTO *Semi-Automatic* LOUVER-GROOVING MACHINE

Cuts grooves in window-shutters, louver-doors or anything where accurate fast spacing is required. Adjustable for left and right angle, vertical and horizontal slots. The machine is widely used for boring dowel pin holes in door styles either and for light mortising. Clamping, infeed and grooving performed with single lever movement.

INSURES FAST ACCURATE WORK

SIMPLE AND FAST SET-UP

OTHER FESTO EQUIPMENT includes singe-end tenoners, chain mortisers, with hollow-chisel attachment, radial saws, sanders and polishing machines.

Write for catalog and prices.

FESTO WOODWORKING MACHINES

745 — 51st Street Brooklyn 20, New York

through which the oily preservative is removed.

Sawmill Mechanism

B. W. Taube (to Filer and Stowell). U. S. 2,604,911, July 29. In a sawmill carriage having knees and dogs movable with respect thereto, fluid pressure means for moving said dogs, a secondary valve for causing fluid to move the dogs to either log-dogging or board-dogging positions.

Veneering

C. F. Bamford. U. S. 2,604,913, July 29. In a veneer slicer having a frame, a knife assembly, a cut-off bar positioned to support a block of wood, means for feeding the block; the combination of an elongate hold-down bar adapted to be held in sliding pressure engagement with the upper surface of the block.

Wood Preservatives

L. Rouzet (to Societe des Laboratoires de Recherches pour Applications Industrielles). U. S. 2,605,206, July 29. Preservatives for impregnating wood comprising creosote oil mixed with a solution of an anthracenic coal tar distillate, a chlorinated phenol, and a petroleum hydrocarbon.

Plywood

A. R. Welch. U. S. 2,606,138, Aug. 5. Applying to a wood sheet a mixture of wood particles and synthetic resin compressing the layer under heat, releasing and subsequently subjecting to greater heat and pressure to cure the resin.

Picker Stick

J. J. Cox. U. S. 2,606,576, Aug. 12. Picker stick for looms comprising a wooden stick portion having leading and rear edges whose surfaces are flat planes and vulcanized fiber reinforcing strips adhesively bonded to the flat surfaces and covering the entire surfaces of the leading and rear edges.

Log Debarker

H. J. Eklund and C. W. Miller (to D. J. Murray Manufacturing Co.). U. S. 2,608,238, Aug. 26. Log barker comprising a log support, a carriage, said support and carriage being relatively movable in a direction longitudinally of a log resting upon the support, a debarking rotor revolvable upon said carriage, said rotor having a pair of spaced coaxial discs drivingly connected to and relatively movable along a shaft disposed transversely of the log and having an annular series of taut chains spanning the gap between discs and means for retaining tautness on said chains.

Veneer Cutters

E. H. Merritt (to Solem Machine Co.). U. S. 2,607,377-8, Aug. 19. Knife, knife holder assembly, pressure bar and pressure bar holder assembly in veneer cutting machines.

THICK KNIVES
by Yates-American

Moulder blanks of exceptional quality are furnished in carbon or high speed steel for outstanding service on moulder heads.

Ground - to - pattern moulder knives are carefully formed to give an accurate reproduction of your pattern.

Tenon knives of high speed steel or carbon steel are furnished to your drawing or sample.

Knives for square heads are furnished of high speed steel or carbon steel accurately heat treated to assure utmost safety for the operator.

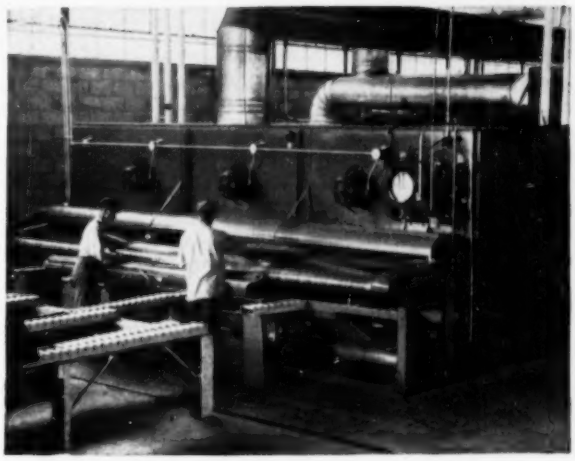
The proper grade of tungsten carbide fused to a TOOL STEEL body assures maximum service from your Yates-American carbide tipped knives.

Planer knives can be furnished of inlaid or solid high speed or carbon steel, solid or inlaid.

Yates-American
BELOIT, WISCONSIN

Fine Face Veneer Maker Reports:

Foxboro Controls Indispensable!



Foxboro Automatic Controls installed on a Proctor & Schwartz, Type "C" Veneer Dryer in plant of Chester B. Stem, Inc.

"Accurately reducing the moisture content in our fine face veneers would not be possible without Foxboro Automatic Controls," writes Mr. R. K. Stem, Vice Pres., Chester B. Stem, Inc., New Albany, Indiana. He explains further, "Veneer flitches vary greatly in moisture content when fed into our dryers. Without Foxboro Controls, the temperature in the dryer would fluctuate constantly, causing uneven drying and virtually unusable dried veneer. We are pleased to report complete satisfaction with Foxboro Controls — and throughout the years they have required little if any maintenance."

Why not assure precise, even drying of your veneers by adding automatic Foxboro Controls to your present veneer dryer. Minimize costly spoilage, and build a reputation for uniform quality. Write for detailed information. The Foxboro Company, 131 Norfolk Street, Foxboro, Mass., U.S.A.

FOXBORO
REG. U. S. PAT. OFF.
VENEER DRYER CONTROL

NAMES and EVENTS

DIEHL REPRESENTATIVES from all over the United States and Canada, and management personnel from the Wabash, Indiana plant at 3-day sales meeting

Diehl Holds 3-Day Sales Meet

About 55 men who sell machines to the woodworking industry on 3 continents attended the 3-day international sales meeting recently held by The G. M. Diehl Machine Works, Inc., in Wabash, Indiana.

From the moment the meeting opened, discussions went into high gear on most everything from machine rental agreements to the impact of foreign machinery competition.

One point stood out above all others at the meeting—every man present knew his customers' problems as well as the machinery they use. The tempo of the 3-day roundup at Diehl gave supporting evidence that the mainspring behind the industry's expansion is the healthy, dynamic relationship which exists between the machine user, the manufacturer, and the man who represents the manufacturer in the trade.

Industry Award Established by SHPI

An award to be known as "The Hardwood Industry Man of the Year Award" was established by the Executive Committee of SHPI at their recent meeting in Memphis. This honor will be bestowed upon the person who, in the opinion of the award committee, has made the most valuable contribution to the general welfare of the hardwood industry during each fiscal year of the association.

All members of the SHPI, are entitled to nominate one candidate for the award. Nominations must be submitted to the Secretary-Manager of the association by January 15, 1953, along with a statement of the candidate's accomplishments and the benefits to the hardwood industry accruing therefrom. Any person may submit a candidate for the nomination through a member of SHPI.

NOW . . . AN IDEAL CABINET CASTER & BRACKET

Write For Complete Details!

COMPLETE WITH EASILY INSTALLED BRACKET

This caster is ideal for Television, Radio or any other type of cabinet where mobility is necessary or desirable.

It is complete with a sturdy, easily installed bracket that requires only 4 screws for installation and adds strength to the cabinet.

Fitting into the inside corner it is practically invisible when installed. The caster swivels easily because it bears on the point of the stem instead of the shoulders as ordinary casters do.

Write today for complete details including prices on any quantity!

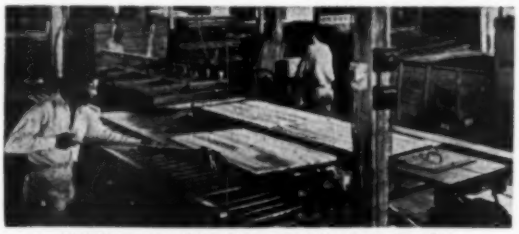
NAGEL-CHASE MANUFACTURING CO.

2819 No. Ashland Ave., Chicago 13, Ill.

You Can Always Depend on

Permawood

Since 1918 the management and supervisory personnel have set high standards for PERMAWOOD. By patient employee training, careful timber selection and use of the finest machinery, we have made a product we are proud to label as PERMAWOOD Hardwood Plywood.



High-frequency Edge-Gluer used in producing floor lumber core for PERMAWOOD Hardwood Plywood.

We make PERMAWOOD panels in standard sizes, all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths from 30" to 48"; lengths from 36" to 96". Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.

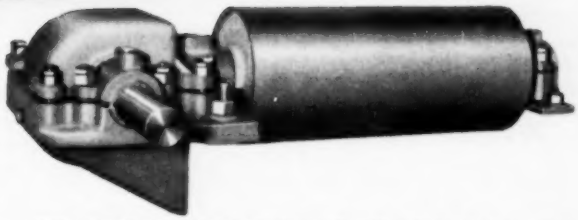
Established in 1918

DARLINGTON, SOUTH CAROLINA

CUT PAYROLL COSTS... SPEED OPERATIONS with WHELAND LIVE ROLLS AND LUMBER TRANSFERS

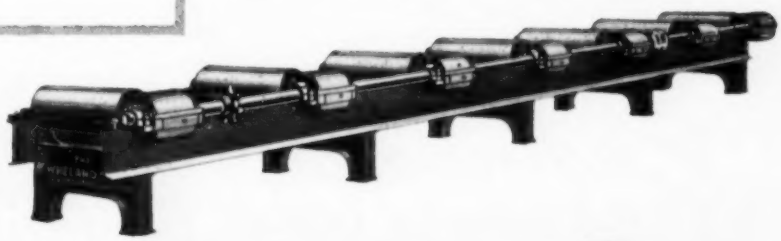
With today's high labor costs and tough price competition, you can't afford slow, old-fashioned manual lumber moving methods. Wheland Live Rolls and Lumber Transfers can help you produce lumber faster and with less men, make substantial payroll savings and extra profits for your mill.

Wheland's experienced sawmill engineers can study your operation and show how you can cut costs and speed production. Bulletins sent on request.



STEEL PIPE LIVE ROLLS. Hard smooth roll surface for long wear. Roll, head and shaft welded into one piece. Collars give extra bearing on shaft, strengthening roll at that point. Gears replaced without installing complete new roll.

Model shown above has 3 bearing oil tight angle box, plain tail box. Also available with surrounding frames and oil tight boxes.



COMPLETE LIVE ROLL INSTALLATION
Rolls are mounted in steel channels supported by structural steel legs. Rolls are more rigid, are easily kept in alignment. This means a big saving in mill-wright work.

STEAM OR AIR CYLINDER LIFT FOR SKID TRANSFERS. The bumper board in roll bed is connected to steam or air cylinder valve. When lumber strikes the bumper it operates valve and raises skids. The bumper is elevated by lever, as shown, or by air cylinder with independent foot valve, which can be located as desired.

INDEPENDENT TYPE SKID TRANSFER
Heavy and deep, with beveled sides to keep stock from hanging up. Pivots on shaft supported by iron stand, which rests on roll casing. Chain is driven by sprocket on side shaft. This relieves side shaft of weight of skid. Built to handle heavy stock. Furnished to fit all standard live rolls.

The WHELAND COMPANY

MANUFACTURERS OF COMPLETE SAWMILLS AND AUXILIARY MACHINERY
CIRCULAR SAWMILLS • HEAVY, PORTABLE • BAND SAWMILLS
EDGERS AND TRIMMERS • TRANSMISSION AND CONVEYOR MACHINERY

CHATTANOOGA, TENNESSEE

S. A. F. and C. I. F. Hold Joint Meeting

The joint meeting of the Society of American Foresters and the Canadian Institute of Forestry, held recently in Montreal, Canada, brought together more than 800 foresters, representing 42 states, six Canadian provinces, and two European nations.

Having as its theme "Trends in North American Forestry," the four-day conference included two general sessions, seven technical sessions, and business meetings of the two professional societies.

K. G. Fensom of Vancouver, B. C., president of the C.I.F., officially opened the meeting with an address of welcome. It was followed by a response by George L. Drake of Shelton, Wash., president of the S.A.F. Additional addresses at the opening session were given by Avila Bedard, deputy minister of lands and forests, Province of Quebec and dean of forestry, at Laval University; and A. W. Bentley, consulting forester for Victoria, B. C.

At the joint C.I.F.-S.A.F. luncheon, the address was given by Hon. Robert H. Winters, minister of the Canadian Department of Resources and Development, Ottawa. At the joint C. I. F.-S. A. F. dinner, Dr. A. W. Trueman, president of the University of New Brunswick, gave the principal address, "An Educator Looks at Forestry."

In behalf of the S.A.F., President George L. Drake presented two awards for distinguished service to forestry. The Gifford Pinchot medal was awarded to Ralphael Zon of St. Paul, Minn., former editor of the *Journal of Forestry* and retired director of the Lake States Forest Experiment Station. The Sir William Schlich memorial medal was awarded posthumously to the late Ellwood Wilson of Knowlton, Quebec, who died in May 1952. The medal was accepted by his son, Richard Elllwood Wilson of Saratoga, N. Y., a professional forester. A third award, a plaque presented annually by the Canadian Forestry Association for outstanding performance in forest conservation, was made to Henri Kieffer, chief of the Forest Protection Service of the Quebec Department of Lands and Forests.

Seven technical sessions were held on the following subjects: forestry education, forest management, silviculture, forest economics and taxation, forest utilization, public relations, and recreation, wildlife and range management. Reports of these technical sessions were presented at the final general session, following which the highlights of the meeting were summarized by George A. Garratt, dean of the Yale School of Forestry, New Haven, Conn.

Veneer Association Re-elects Mertes

Joseph F. Mertes

Joseph F. Mertes, president of the R. S. Bacon Veneer Co., Chicago, was re-elected president of the Veneer Association at their annual meeting held recently in Chicago.

Also elected officers of the association were vice president, J. B. Alexander, president of Alexander Wood Products, Athens, Ga., and secretary-treasurer, Robert T. Thompson, vice-president of Thompson Mahogany Co., Philadelphia.

Charles E. Close, who has been with the association for 17 years, was re-elected executive vice president.

Summing up sales for the calendar year of 1952, Mertes reported that, while business was off a bit early in the year, the recent surge in television

Engineered
FOR TUNGSTEN CARBIDE

MEYCO carbide tipped circular saws ARE DIFFERENT, because the blade and teeth have been engineered for tungsten carbide. It is this know-how of building a carbide tipped saw from the ground up, that has made MEYCO saws popular and accepted as the standard of the industry. MEYCO saws will run longer between grinds, give you more regrinds, produce smoother cuts and save you many times their small extra cost over ordinary circular saws. Write for fully descriptive catalog and price list No. 27.

W. F. MEYERS CO., INC., BEDFORD, INDIANA

Wapakoneta Knives
ASSURE HIGH SPEED PRODUCTION
BIG CHIEF
The most dependable knife for general purpose high production work.
MOHAWK
Can withstand hard knots in Southern and similar soft woods
KNIFE SPECIALISTS SINCE 1891
THE WAPAKONETA MACHINE COMPANY
WAPAKONETA, OHIO

and furniture sales will probably bring the 1952 total shipments of veneer close to a billion feet.

The board of directors visited the Chicago Museum of Science and Industry for a luncheon with Major Lenox Lohr, president of the museum, and for a tour of the permanent hardwoods exhibit that is nearing completion and scheduled to open early 1953.

Teco Re-elects Officers and Directors

The officers and directors of the Timber Engineering Co. were re-elected, with but one exception, at the recent annual meeting.

Re-elected officers are Leo V. Bodine, Chairman of the Board; Harry G. Uhl, President; Richard G. Kimbell, Vice President; Leonard G. Carpenter, Treasurer; Mary Ahern, Assistant Treasurer; and Ralph G. Gloss, Secretary.

Board members re-elected are J. R. Bemis, C. Arthur Bruce, M. L. Fleishel, A. J. Glassow, Earl Houston, Charles W. Ingham, Ralph R. Macartney, Earl McGowin, Chester B. Stem, John B. Veach, R. C. Winton, Mr. Bodine, Mr. Uhl, and Mr. Carpenter.

T. Lincoln O'Gara, vice president of Weyerhaeuser Sales Company, and widely recognized for his abilities in merchandising lumber and forest products, was the only new member elected to the board.

Hardwood Lumber Grading School Announced

A hardwood lumber grading short course, jointly sponsored by the University of Illinois, Urbana, and Purdue University, is scheduled for January 5-10, 1953. Its purpose is to give men engaged in the production, processing or distribution of hardwood lumber an opportunity to learn or review the National Hardwood Grading Rules.

Erwin Gutsell of Grand Rapids, Mich., midwest field representative of the National Hardwood Lumber Association, will give the major instruction. Supplemental work includes instruction on lumber identification, seasoning in relation to grade and Milpak.

The course of instruction is designed to give sawmill managers, lumber scalers, sawyers and others working with hardwood lumber intensive training with only a short absence away from their jobs. R. K. Newton, Supervisor of Conferences, 713⅛ South Wright Street, University of Illinois, Champaign, Illinois, is in charge of registration, which closes on January 3.

Personnel Changes

ROBERT H. EVANS, Frost Lumber Div., Olin Industries, Inc., Shreveport, La., and CLYDE MORGAN, Rayonier, Inc., New York, N. Y., were named to the board of directors of the American Forest Products Industries, Inc., Washington, D. C., for a three-year term.

R. G. HAYDEN has been appointed plant manager of the Wood Box Div., General Box Co., at the firm's plant in Louisville, Ky.

A. L. MILLER has been made manager of the Sawmill and Lumber Div., J. H. Hamlen & Son., Inc., Little Rock, Ark.

H. Y. HINSON is named plant manager of the sawmill of Olin Industries, Inc., Huttig, Ark. J. R. PHILYAW has been named acting manager at Waskom, Ark. until its liquidation is complete.

GEORGE D. SCHWARTZ has been appointed mid-western sales manager of the Barclay Manufacturing Co., and will make his headquarters in Chicago, Ill.

CECIL ECKERT, an 18-year employee of M & M Wood Working Co., has been appointed manager of the Port-

JAMESTOWN
Specials

BAL-CO-PLY non-warping door stock — engineered for cabinets and furniture parts that require a practically WARP PROOF plywood.

JAMESTOWN A GRADE BIRCH skillfully matched for grain and color . . . lumber or fir core.

JAMESTOWN NORTHERN RED OAK — we cut our own veneer from selected Red Oak . . . lumber or fir core.

JAMESTOWN CHAUTAUQUA COUNTY NATURAL Hard White Maple.

. . . also Walnut, Mahogany, Rift and Plain White Oak as well as other Plain and Exotic Woods.

any of the above in all standard thicknesses with lumber, fir or veneer core.

JAMESTOWN VENEER and PLYWOOD CORPORATION
Jamestown 2, N. Y.

JAMESTOWN
HOT PRESSED RESIN BONDED
Multiplied Strength
PLYWOOD

minimum prices may be had on quantities of 100 of size and kind, in truckload or carload lots.

land, Oregon subsidiary, National Tank & Pipe Co.

JOHN J. HICKEY is named assistant advertising manager of the Georgia-Pacific Plywood Co.

FRANK J. HANRAHAN has been appointed permanent executive vice-president of the American Institute of Timber Construction, Washington, D. C.

RICHARD D. BEHM, former chief of the plywood and fabricated branch of the lumber division, National Production Authority, has been appointed special factory representative M & M Wood Working Co., with headquarters in New York City.

RICHARD DAY has been appointed manager of the Little Rock, Ark. plant of the E. L. Bruce Co.

RONALD RICHARDSON, a former Pacific Northwest newspaper man, has been named assistant managing director of the American Forest Products Industries, Inc., Washington, D. C.

ROBERT H. EVANS, Frost Lumber Div., Olin Industries, Inc., Shreveport, La., was named to the board of directors of the American Forest Products Industries, Inc., Washington, D. C. for a three-year term. JAMES L. MADDEN, Hollingsworth & Whitney Co,. Boston, Mass., was re-elected to his second term as president of the forest industries group .

TOM G. BONALLO, who has been resident manager of the Montgomery branch, Dimensowood Div., Gamble Brothers, Louisville, Ky., has resigned because of failing health. His duties will be taken over by GEORGE GIBSON, who has been with the company for a number of years.

STANLEY C. SKIDMORE joined the staff of the U. S. Forest Products Laboratory, Madison, Wis. more than 40 years ago. When asked about his plans for the future, Skidmore said he expects to "be around the Lab for another year or two".

GUS A. SEIDEL, vice-president of Splicedwood Corp., Mellen, Wis., has been elected to the chairmanship of the Upper Mississippi Valley Section of the Forest Products Research Society.

C. S. "Pat" HERR has been elected vice-president of woods operations in the United States for Brown Co., Berlin, N. H.

New Firms

HUB CITY SPECIALTY CO., Jackson, La., is a new firm with a contract to manufacture ammunition boxes for the Liberty Powder Co., Newport, Ind.

MERIDIAN WOODWORKING CO., Meridian, Miss., is a new concern that has taken over part of the facilities of the old Wood Specialties plant at Key Field. The new company will manufacture brush handles.

HAWBUCK WOODWORK CO., INC., has been organized in Chattanooga, Tenn., to manufacture furniture. M. L. Hawke is president and manager of the plant, which is located at 110 Midvale Ave.

MENA BOX & CRATE CO., INC., has been formed in Oklahoma City, Okla. The incorporators are Howard C. Brown, Jewoll R, Ray, and J. Claude Ray.

DELTA MILLWORK MANUFACTURERS, INC., Jackson, Miss., has been granted a charter of incorporation.

DUNBAR BOX & LUMBER CO., INC., New York, N. Y., has changed its name to NORMAN LUMBER CO., according to attorney Harry Feldman, 11 W. 42nd St., New York City.

APOLLO MANUFACTURING CO., INC., Syracuse, N. Y., has been organized, listing capital stock of $50,000. Directors: Adolph Falso, RFD, Lyndon

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Just off the press. A real encyclopedia of woodworking bits and cutters. 72 pages. Contains engineering advice, photographs, set-up diagrams, useful information on router operation, pricing formula, dimensions, specifications on hundreds of high-speed steel and carbide tipped bits and cutters, available in standard patterns or made to order. Every wood shop superintendent and executive should have this book constantly at hand for ready reference when buying cutters and planning production. Mail coupon for your copy today.

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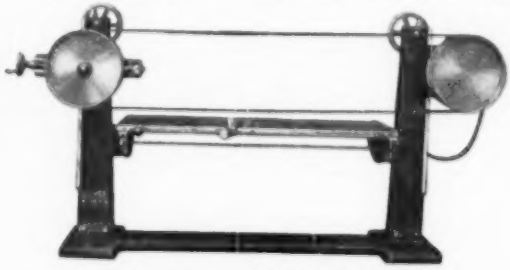
"OLIVER" Reversible Belt Sanders

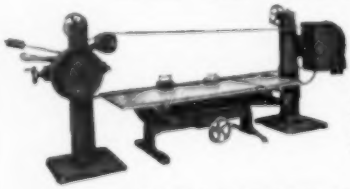
Unmatched for mouldings and flat work!



"Oliver" No. 184-D Belt Sander

With pulleys up it's a Flat Sander; with pulleys down, a Moulding Sander. Sands and polishes line and edge mouldings, flat and irregular surfaces. Also small and medium size built-up pieces. Entirely self-contained. Has ball bearing aluminum pulleys — rubber faced, adjustable. Motor-on-shaft drive.

"Oliver" No. 183-D Belt Sander



Sands line and edge mouldings, flat and irregular surfaces, and built-up pieces up to 44" high. Three units easily alined. Takes work any practical length, and sands to center of 66".

Write for Complete Information

OLIVER MACHINERY CO., GRAND RAPIDS 2, MICH.

Road, Fayetteville, N. Y.; Charles A. Schoeneck, Jr., and Howard H. Cannon, both of 1400 State Tower Bldg., Syracuse, N. Y.

DITMAS FRAME CO., INC., Kings, N. Y., is a new company organized to manufacture furniture and frames. The directors are: Nathan Schwartz, Conrad B. Duberstein, and William J. Rudin, all of 26 Court St., Brooklyn, N. Y.

GALAUR BOX MANUFACTURING CORP., Queens, N. Y., has been organized to manufacture wood boxes. Directors: Robert P. Marcus, 211 Central Park, N. Y., Ziuta Gerstenzang, 91 Central Park, New York, N. Y., and Leo Gerstenzang, of the same address.

ANTON PACKAGING CO., INC., Levittown, N. Y., has been formed to manufacture boxes, barrels, and other wood containers.

MID-SOUTH LUMBER CO., INC., manufacturers of millwork, is a new firm which has been established at 267 South Parkway East, Memphis, Tenn. Grady Parker is the manager.

TACO, INC., a new concern, has established its plant at 2700 Jackson Ave., Memphis, Tenn., for the manufacture of door units and trim. J. E. Davis is plant manager.

ALLIED WOOD PRODUCTS CO., INC., Greenwood, Miss., has been granted a charter of incorporation, listing capital stock of $10,000.

CURRY-THRASH LUMBER CORP. has been organized with $50,000 and is located at Meridian, Miss.

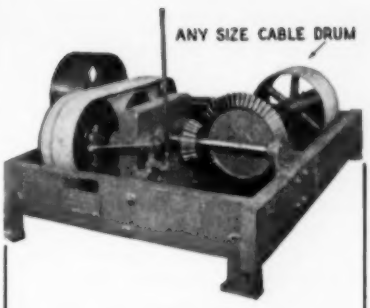
MILLER WOODWORKING CORP., Utica, Oneida County, N. Y., has been formed for the manufacture of woodenware of all kinds. Directors: Gertrude S. Hicks, Leonard W. Ferris, and Richard O. Kehoe, 13 Scott St., Utica, N. Y.

MICHAEL S. CARLIN, INC., manufacturers of interior and exterior woodwork, is a new firm in Kings, N. Y.

Expansions

LONG-BELL LUMBER CO. has started the construction of a planing mill at Vaughn, Ore.

YATES-AMERICAN MACHINE CO. has announced its acquistion and transfer to Beloit, Wis. of the manufacturing facilities of Big Four Carbide Tool Co.,



ENTERPRISE
Model 56

Carriage Feed
for Band and large
Circular Mills

Write for lumber and log calculator

The Enterprise Company
Subsidiary of
WM. K. STAMETS COMPANY
Machinery Builders &
Engineers — Pittsburgh
COLUMBIANA, OHIO, U. S. A.

HANCHETT

KNIFE GRINDERS

TABLE DRIVEN • HYDRAULIC
FULL AUTOMATIC
ELECTRICAL

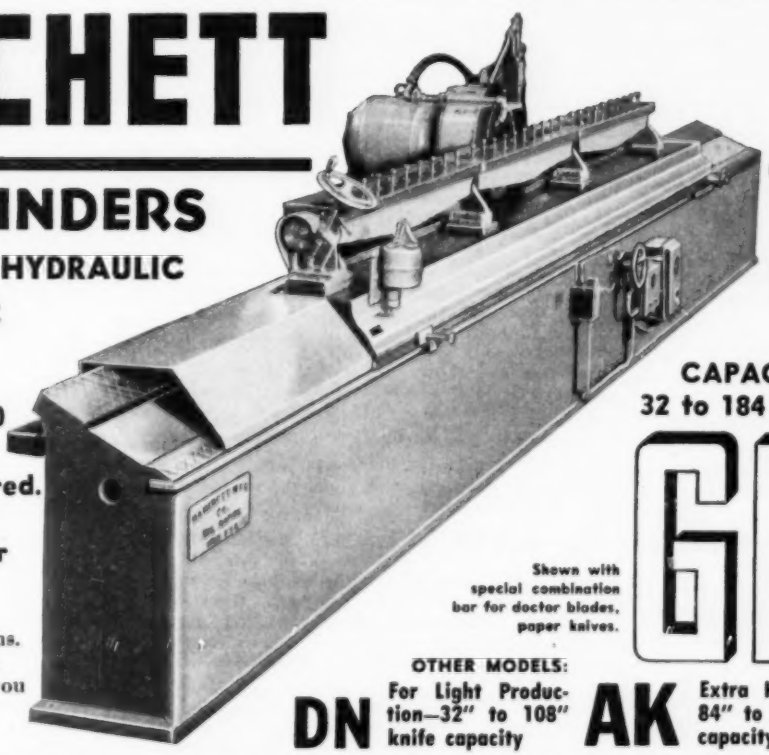
Speeds from 10 to 80 feet per minute.

Faster speeds if required.

Available with either Segmental or Cylinder Type Wheels.

Tell us your knife problems. Our engineers may have a money-saving solution for you

Write Dept. WWP-13



CAPACITY
32 to 184 inches

6K

Shown with special combination bar for doctor blades, paper knives.

OTHER MODELS:

DN For Light Production—32" to 108" knife capacity

AK Extra Heavy Duty 84" to 360" knife capacity

HANCHETT MANUFACTURING CO.

Main Office — BIG RAPIDS, MICH.
West Coast — PORTLAND 4, ORE.

at Cincinnati manufacturer of carbide-tipped saws and other cutting equipment.

UNITED STATES PLYWOOD CORP., 55 W. 44th St., New York 36, N. Y., has opened a new sales and distribution unit in Phoenix, Arizona. J. J. Carroll has been named manager. The company has acquired the 49% minority interest in Siuslaw Forest Products, Inc., Mapleton, Ore.

ATEX MANUFACTURING CO., has rebuilt its plant after a fire six months ago, and is now in operation at Stamps, Ark.

Deaths

JAMES F. GOODMAN, brother of R. B. Goodman of the Goodman companies in Wisconsin and other northern areas, died of a heart atack in Kansas City, Mo., November 27. He served on the board of directors of the Northern Hemlock and Hardwood Manufacturers Association from 1936 to 1941.

J. VAN DYKE NORMAN, SR., a nationally known freight rate attorney and member of a family long prominent in the lumber business in Louisville and the South, died at 75 in

Structural Grading

Continued from Page 36

ing stresses in bending and in compression and tension parallel to grain are governed by the strength ratios in the tables for knots and for cross grain.

Working stresses for horizontal shear in beams are governed by the ratios for shakes, checks and splits. Strength in compression perpendicular to grain and modulus of elasticity are affected but little by these defects, and a strength ratio of 100% is used for these strength properties in all grades.

While structural grading has its broadest application to structural lumber, the same or closely related principles are used in a number of other wood products.

Round timbers are frequently used as load-carrying members. The most common examples are poles and piles, but rustic construction or other specialized purposes (Fig. 5) may also take round members. The strength of round timbers is affected by spiral grain, knots and other defects in much the same way as is that of sawed lumber, although the effect on round timbers has not been fully evaluated.

It is thought that the swell of the trunk at the location of a branch may largely offset the weakening effect of a knot in round timbers. Spiral grain may have less effect in round timbers than in sawed timbers, because the inclined fibers of wood are not cut off at the surface of round timbers as they are in sawed timbers.

Increased utilization of small sizes of lumber has brought on the need for strength grading of lumber with 1 in. nominal thickness. Strength ratios related to knots in 1 in. boards are much the same as in dimension and timbers. Further studies on the strength of 1 in. boards are under way and are expected to yield information on the gain in strength from drying, which is larger than that observed in timbers.

The principal use of this thinner material, in which strength is important, is in making up glued laminated structural members. It is also employed in roof trusses, trussed rafters and built-up structural members of various kinds.

Strength Properties of Plywood

The strength properties of plywood can be estimated quite satisfactorily in terms of the thickness and arrangement of the various plies and their strength and elastic properties. Structural plywood has, in the past, been made from practically clear veneers whose strength and elastic properties are the same as those of clear wood.

More complete utilization of available veneer supplies now requires knowledge of the strength properties of veneers containing defects. The same defects as in lumber influence the strength of veneers, though in a somewhat different way. Veneers are so thin that any strength-reducing characteristics extend through the full thickness. On the other hand, veneer has indefinite length and width, and grading must be related to some unit portion of those dimensions.

A further strength-affecting characteristic of sliced or peeled veneers is the presence of checks formed as the sheet is bent by the knife edge in cutting it from the log. The strengthening or healing effect of glue on these "knife checks" is considered in the strength grading of veneer.

Stress grades in other countries are on a more simplified basis than in the United States. This is possible in part because of fewer structural species and more homogeneous marketing conditions. At the same time, the system here is rather complex, and simplification would be desirable. The Forest Products Laboratory is studying possible means of doing this, and lumber manufacturers have also expressed interest in the problem.

Trends in Research

Along with simplification, there is need for improving the efficiency of strength grading. Pieces of lumber grouped into a single stress grade show a substantial range of strength values. Since working stresses for design necessarily reflect the properties of the weaker pieces in a grade, the stronger pieces are not used efficiently.

Some means of non-destructive inspection or testing is needed to supplement or perhaps replace the present visual grading for strength. The possibilities of using X-rays or ultrasonic vibrations have been investigated, as have the more prosaic observations of weight, stiffness or hardness. Much more might be done in this direction.

The smaller sizes of structural lumber become relatively more important as large old-growth trees become scarcer. The use class of joists and planks admits these smaller sizes, and its importance is thus enhanced.

Development of wood trusses (Fig. 6) brings on the situation of joist and plank sizes being used in direct tension or direct compression. Grading of joists and planks therefore needs to be adequate for any of these loadings. This creates a tendency toward the universal or all-purpose grade. Some adaptation of the existing principles of strength grading will be needed in an all-purpose grade, but this can and probably will be done.

Wood is the renewable structural material. This fact, plus wood's favorable structural properties, points to a continuing high level of use and continuing problems in structural grading. Wood research recognizes and endeavors to meet this challenge, both in present problems and in the needs of the future.

(EDITOR'S NOTE.—The foregoing article is from a paper presented at the Wood Symposium held in Chicago during the recent Centennial of Engineering of the American Society of Civil Engineers. The author is a research engineer specializing in heavy timber construction and design.)

What Do YOU Think?

Executives in all branches of the wood industries are invited to contribute their thoughts on the subject discussed on Page 19. Whether pro or con, let's have your frank comments on this industry problem.

—The Editors.

Letters to the Editor

Need for Saw Filers Acute

Editor, WOOD & WOOD PRODUCTS:

I have read twice your article in the November issue—"How to Train Saw Filers."

We are a small mill with a 54" band. We require at all times the best of saw filers. Our present filer is a fine example of the craft but over 60.

The need for really well trained filers is acute. Would the school in Quebec take young men from this section and, if so, on what terms? Would appreciate this information.

—G.R.M. Lbr. Co., Ark.

Engravers' Blocks

Editor, WOOD & WOOD PRODUCTS:

On page 43 of the September issue of WOOD & WOOD PRODUCTS, reference is made to cherry and maple blocks to be used in backing on engraving plates. What woods are commonly used for this purpose, and is soft maple suitable as well as hard maple?

Also, can you give me the names of companies who might be interested in this material or any other information that might be helpful in contacting the markets for this product?

—J. R. P., Oreg.

Maple and Birch Rollers

Editor, WOOD & WOOD PRODUCTS:

In response to your Wood Puzzlers question No. 80, for "Rough Turned Wood Blocks," from a concern in Pennsylvania, we turn maple and birch rollers so might be able to help this concern in their problem.

Kindly place them in contact with us or forward us their name so we may contact direct.

—L. Mfg. Co., N. J.

Casting Resins

Editor, WOOD & WOOD PRODUCTS:

In your November issue, there is an article on page 34 by T. A. Dickinson titled, "Casting Resins Turn Wood Wastes to Profits."

I am very much interested in this, especially the low-temperature thermo-setting resins. Would like to have more complete information, such as source of supply for resins mentioned, more complete information as to grinding scrap into chips or dust, whichever is required.

—H. Mfg. Co., Texas

Casting Resins Again

Editor, WOOD & WOOD PRODUCTS:

We have read with interest the article in the November issue by T. A. Dickinson in regard to molding wood waste.

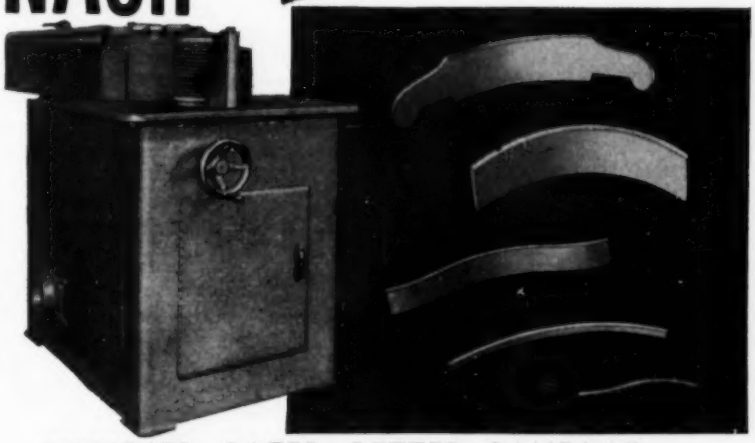
Would like very much to know where we may obtain more data as to the phenolic resins and the different methods of molding. We would also like to know where it might be possible to witness some of these operations.

We have long been studying the problem of utilizing our wood waste. Rather extensive investigation into methods of automatically burning waste indicates we do not have sufficient waste to warrant the installation of the necessary equipment. Farmers haul quite a lot of it, but we still have to dump the biggest quantity.

We will greatly appreciate your cooperation in furnishing us with all available information.

—F. A. Engg. Corp., Mich.

NASH No. 85 CHAIRBACK SANDER



SPEEDIER, SAFER, BETTER SANDING OF CONCAVE and CONVEX SURFACES

Like all Nash Sanders, the No. 85 justifies itself by cost savings, and this chairback sander will save on either small or large lots.

It is designed to sand curved or serpentine stock up to 1¼" thick and 6" high, at a variable rate from 18 to 55 feet per minute. Parallelism of stock is maintained and an excellent finish produced. Will sand curvatures of 5" on an arc of 30 degrees, and 8" on an arc of 90 degrees.

ELIMINATE SLOW MANUAL SANDING

The job of sanding over a large sanding drum is not only tedious but frequently causes injury to the operator. The Nash 85 eliminates this hazard and speeds production. The only set-up required on the Nash 85 is adjustment of feed rolls to thickness of stock, and regulating pressure for desired stock removal.

WRITE today for Bulletin giving complete description and specifications.

J. M. NASH COMPANY

Dept. 85, 2359 N. 30th Street, Milwaukee 10, Wisconsin

MANUFACTURERS OF IMPROVED MODERN WOODWORKING MACHINERY INCLUDING THE FAMOUS NASH No. 50 AUTOMATIC TURNING SANDER

Plant Layout

Continued from Page 23

Relayout of the department accomplished the following improvements as shown in the "after" layout:
1. Labels could be moved in a short, straight line directly to the point of use.
2. Fibre storage was set up on the second floor and setup cases chuted directly to the boxing operator.
3. The right-angle conveyor was eliminated and finished goods moved along a straight line through the department.
4. Additional space was made available both for storage and on the production floor.
5. There was a 33 1/3% reduction in the size of crew required.

These changes were accomplished in a minimum of time, with no disruption of regular production (conveyor shift was carried out over a weekend and without investment in capital equipment.

Except where the operation involves only heavy stationary equipment, an investigation of present plant layout will usually reveal many backtrackings, crisscrossings, excessive transportation distances, or bottleneck areas. Elimination of these problem areas may mean real economies and a smoother, faster flow of work.

Like other production management problems, plant layout must be analyzed with care and skill. Here are some fundamental principles which must be kept in mind:
1. Plant layout must express a management purpose, which in turn is closely geared to the company's philosophy and practice of production control.
2. Layout must be based on accurate, realistic data on requirements, operations, time and methods.
3. Layout must provide for both productive and non-productive facilities.
4. Working conditions—heating, lighting, ventilating, noise, vibration, dirt and safety—must all be considered.
5. Each operation and the sequence of operations must be studied in detail, preferably in chart form. This is often a time-consuming job.
6. The cost of layout changes must be weighed against the advantages and savings to be gained. The ideal layout may cost much more than a careful rearrangement of the present shop and thus should be thoroughly justified if attempted.

Plant layout and the flow of work should be a continuing concern of shop management. It is, however, particularly important when considering new equipment, additions or alterations to the plant, expansion, or changes in the product line.

WOODICTIONARY

BOX A LOG

To throw a log from the log trough upon the mill deck, by means of a log kicker.

Oak Flooring Fights

Continued from Page 27

Even after making allowances for such variables as dealer inventories and the carry-over of unfinished houses from year to year, these figures are impressive. In 1920, for example, hardwood flooring shipments in the Southern and Appalachian regions were equivalent to about 398 bd. ft. per dwelling unit.

The 10-year average from 1920 through 1929 was 585 bd. ft. In the five years ended in 1951, the average was 785 bd. ft., up 34% over the figure for the 1920s.

That record, I believe, is especially favorable in view of certain factors involved. For one thing, the average new postwar home is much smaller than its counterpart of the 1920s. The average new dwelling of 1929 had 3,000 sq. ft. of floor space. The 1939 house had just half that area, or 1,500 sq. ft. And the 1949 home had even less—1,200 sq. ft. Right now, I believe, the average is somewhere in the neighborhood of 1,000 sq. ft.

In other words, the typical postwar house required far less flooring than a home of the 1920s. Yet the use of hardwood flooring *per dwelling unit* increased more than one-third. This certainly indicates that oak and other hardwoods have gained a greater share of the total housing market than they held previously.

TABLE A

Ratio of Hardwood Flooring Shipments To Housing Units Built

Year	Non-Farm Housing Starts	M. Ft. Flooring Shipments Appalachian and Southern	Ft. B.M. Per Start
1922	716,000	287,845	402
1923	871,000	345,500	397
1924	893,000	449,441	500
1925	937,000	545,683	582
1926	849,000	545,376	642
1927	810,000	531,945	657
1928	753,000	568,295	755
	(DEPRESSION)		
1939	515,000	428,610	832
1940	602,600	512,045	850
1941	706,100	543,977	770
	(WORLD WAR II)		
1946	670,500	283,126	422
1947	849,000	606,653	715
1948	931,000	794,706	854
1949	1,025,100	785,350	766
1950	1,396,000	1,025,762	735
1951	1,091,300	936,620	858
1952*	966,400	815,272	844

*10 months.

Another thing that makes this record outstanding is the fact that it has occurred during a period of strong competition. More substitute materials are on the market today. The manufacturers of those materials have been conducting strenuous advertising and promotion campaigns at a cost of millions of dollars.

And here's a third factor which makes this showing of the hardwood flooring industry especially gratifying. Concrete slab construction in homes has expanded rapidly in the last 10 or 12 years. Manufacturers of such substitute flooring materials as asphalt tile have made a strong play for that market. Their big selling point has been lower initial cost. As a result, a sizable number of concrete slab homes, particularly those in the lower price range, have been floored with asphalt tile. However, even that dent in the housing market has not impeded the overall trend toward greater use of hardwood.

What is more, the hardwood flooring industry has taken a big step toward winning a much larger share of the concrete slab home market than it has ever had in the past. That step is the vigorous promotion of a lower cost method of installing strip hardwood flooring over concrete. This method eliminates the need for wood subflooring, and therefore permits substantial savings in labor and material.

The flooring is nailed directly to 2 x 4 sleepers imbedded in mastic on the concrete. The sleepers are ar-

Appalachian hardwood News

BEMIS HARDWOOD LUMBER CO.
HEMLOCK-HARDWOODS-
FLOORING-DIMENSION
ROBBINSVILLE, N. C.
Code: 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 25, 26, 27, 31, 35, 38, 40

●

Biltmore Appalachian Hardwoods, Inc.
MANUFACTURERS & WHOLESALERS
APPALACHIAN HARDWOOD LUMBER
Dry Kilns and Planing Mill
Biltmore Station, Asheville, N. C., Tel: 2-0151
Code: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 25 26, 27, 31, 35

●

Ely-Thomas Lumber Company
Quality Hardwoods
General Office
CAMDEN-ON-GAULEY, W. VA.
Kiln Drying Facilities — Planing Mill

●

J. P. HAMER LUMBER COMPANY
Manufacturers
Appalachian Hardwoods
Kenova, West Virginia
Code: 3, 6, 7, 8, 10, 11, 13, 17, 19, 20, 21, 29, 30, 31, 32, 33, 40

●

W. C. Hennessee Lumber Co., Inc.
Manufacturers
Appalachian Hardwood Lumber
Sylva, N. C.
Code: 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 18, 19, 20, 21, 23, 25, 26, 27, 30, 31, 32, 33, 39, 40

●

Marshall Lumber Company
APPALACHIAN HARDWOODS AND WHITE PINE
WHOLESALERS OF SOUTHERN HARDWOODS
P.O. Box 559 — Marion, N. C.
Telephone 198
Code: 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 26, 27, 29, 30, 32, 33

●

MILLETT HARDWOOD LUMBER Co.
Appalachian North & South Central Hardwoods
313 Columbia Bldg.
Louisville 2, Ky.
Telephone Clay 2500

APPALACHIAN HARDWOODS

"AMERICA'S FINEST"!

Grading rules separate hardwood lumber into classes according to physical characteristics which determine utility values. Grading rules, however, do not define texture, evenness and fineness of grain—properties which make for ease of kiln drying, working and finishing, and the important economies resulting therefrom. These desirable properties, long recognized and sought by manufacturers of high-grade furniture are a quality bonus imparted by Nature to hardwoods grown in the Appalachian territory.

- ***Use of Appalachian hardwood does not mean merely***
- ***good furniture made of good material . . .***
- ***it means superior furniture made of superior material!***

As assurance of this superiority, use Appalachian hardwoods—"America's Finest"

THE MOWER LUMBER COMPANY
MANUFACTURERS
WEST VIRGINIA HARDWOODS
MASONIC BUILDING
Charleston 28, West Virginia
Phone 37-638 — P. O. Box 2115
Code: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 28, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41

●

VESTAL LUMBER & MFG. CO.
MANUFACTURERS
Appalachian Hardwood Lumber
Knoxville 9, Tenn.
Code: 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 25, 26, 27, 29, 30, 32, 33, 34, 35, 36, 37

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WARNER LUMBER COMPANY
"Quality Appalachian Hardwoods, Hemlock and White Pine"
P. O. Box 545 — Asheville, N. C.
Telephone 3-2431
Code: 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 25, 26

●

West Virginia Hardwoods, Inc.
Manufacturers & Wholesalers
Appalachian Hardwood Lumber
Kenova, W. Va.
Telephone 2171
Code: 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 29, 30, 31, 32, 33, 35, 36, 37, 38, 40, 41

●

J. WALTER WRIGHT LUMBER CO.
Manufacturers & Wholesalers
LUMBER
UNION TRUST BUILDING
BRISTOL, TENN.
Code: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 21, 23, 25, 26, 27, 29, 30, 31, 32, 34, 38, 39.

CODE . . .	
1 Bandmill	22 Sycamore
2 Resaw	23 Walnut
3 Circular Mill	24 Others
4 Planing Mill	25 Hemlock
5 Dry Kilns	26 Pine-White
6 Ash	27 Pine-Yellow
7 Basswood	28 Spruce
8 Beech	29 Oak Planking
9 Birch	30 Oak-Car Stock
10 Buckeye	31 Oak-S.S.E.
11 Butternut	32 Oak-Truck Body
12 Chestnut	33 Oak-Timbers
13 Cherry	34 Cross Ties
14 Gum-Black	35 Oak Flooring
15 Hickory	36 Maple Flooring
16 Locust	37 Beech Flooring
17 Maple-Hard	38 Dimension Semi-Fin. & Fin.
18 Maple-Soft	39 Dimension Rough
19 Oak-Red	40 Stepping Pl.
20 Oak-White	41 Mouldings
21 Poplar	42 Others

ranged in a staggered pattern widthwise of the room. They're relatively short—18 to 30 in. in length. And they're so spaced as to provide plenty of support and nailing surface for the hardwood flooring.

Usually, a two-membrane moisture barrier of asphalt felt and hot asphalt or pitch is first applied over the concrete for protection against dampness. Sometimes the barrier is placed between the slab and the fill.

This method was pioneered in the South and Southwest and has proved successful in thousands of installations. Thanks in large part to the efforts of the National Oak Flooring Manufacturers' Association, the system was approved last year by the FHA. That move in itself is expected to aid greatly in popularizing this type of floor construction.

Sell Housing Officials

Whenever the occasion arises, NOFMA attempts to sell local public housing officials on the advantages of oak floors over concrete. Particularly when the authorities are considering asphalt tile, we really bear down. And there is no question in our minds that we have much the better case.

We point out that oak floors help safeguard health because they are warm and dry. They are more comfortable to walk on. Oak floors create no distressing moisture problem.

We mention prominently, too, the superior beauty of oak floors, their ease of maintenance and their lifetime durability. As for cost, we point out that while asphalt tile may be cheaper initially, oak floors are more economical in the long run. As we explained to public housing officials in Memphis just recently, studies have shown that the savings in fuel effected by wood floors make them actually more economical over a period of years.

The association also is attracting attention to the advantages of oak floors installed over concrete by publicizing the new construction method on a nationwide basis. This is being done as part of NOFMA's advertising and publicity programs, which were resumed shortly after the war. These campaigns reach millions of consumers every week, as well as architects, builders and retail lumber dealers.

Media employed for advertising include leading trade publications and shelter group magazines. Publicity stories emphasizing the various advantages of oak floors appear continually in hundreds of newspapers throughout the nation. Articles favorable to oak floors are published in influential trade papers and consumer magazines. Scripts featuring the advantages of oak floors are prepared for broadcasting by hundreds of radio stations.

These activities, we believe, have played an important role in maintaining and increasing the popularity of oak floors. A survey recently by a national magazine disclosed that 84% of all home makers prefer floors of polished hardwood, at least for living and dining rooms. Builders say that in many communities the preference for hardwood is even greater.

Well, that's the story of what has happened in the flooring industry during a period in which lumber products in general have suffered from the competition of substitute materials. In my opinion there is a lesson there for other branches of the lumber industry. I do not mean to imply that promotion alone can solve the industry's problem entirely, but it certainly can do much to counteract the growing use of substitutes.

You can lend effective aid in one phase of promotion that surely would have beneficial results. I refer to greater allegiance to wood and wood products on the part of members of the lumber industry. There are several million persons employed in the wood products industries. Among them are thousands of "bell cows," those who set the pattern of behavior followed by others. Thus there exists not only the market created by industry members themselves, but also the market created by their influence on others.

In this connection I suggest you first take inventory of yourselves and your own habits. Do you sit down to a chromium breakfast table each morning to partake of food prepared in a kitchen rimmed with metal cabinets? Does your bedside radio have a plastic cabinet? Are your lawn chairs made of aluminum? *All of these items are readily available in warmer, more beautiful and better-performing wood.*

And what of your office? Are your floors of hardwood? Are they properly maintained so as to be attractive to others? And how about your desks and file cabinets? Wood cabinets may be hard to find, but they are available if you look around. I know, having recently bought two new beautiful cabinets of quartered white oak.

So, I earnestly urge you—*use wood products yourself whenever it is practical to do so.* And talk up the beauty, durability and other advantages of wood among your friends in other industries. Executives of companies can go even further. They can educate their employees to greater allegiance to wood, pointing out that the livelihood of those workers is dependent on the popularity of wood.

Letters in payroll envelopes would be an effective means to do this. So would direct talks at employee meetings. Union officials could be enlisted to help sell allegiance to wood among the rank and file workers.

Since wood is our livelihood, we naturally should consider ways to arrest the trend to other materials. In this effort we have the advantage of dealing in a product ideally suited for an infinite number of uses.

(EDITOR'S NOTE.—*This article, based on a talk delivered by the author before the 1952 convention of the National Association of Commission Lumber Salesmen, was edited with a wood lead pencil at a wood desk.*)

WOODICTIONARY

A FRAME

Two poles lashed together with a cross piece in the form of an A with a block hung in the apex. Used as a spar in cable logging.

Veneer Core Warping

Continued from Page 32

ture content, but from 30% to 10% there is approximately 1% of dimensional shrinkage for each 5% change in moisture content. This aggregates a dimensional loss in thickness of about 4%.

Theoretically, this would require that lathe settings for thickness regulation be 4% above standard. As a matter of fact, most veneer lathes are geared for standard dimensions and

cut to standard thickness in green veneer, which is reduced some 4% in thickness during drying.

The actual net thickness of veneers is of special importance where veneers are joined edge to edge, and a variation of 1/100 in. may show a line through a finished and polished surface. Hence, core joints for veneers, in quality plywood, should be limited to veneers coming from a single producer.

Q. 28. How is "tenderized" veneer accomplished?

A. 28. Tenderizing veneer is a method of making intermittent and staggered slots in the sheets of veneer before they are glued into plywood, as illustrated in Fig. 3. Note that the slots extend about halfway through the veneer and are so staggered from top to bottom side, and across the surface, as to sever angling grain effects but still leave the veneer sheet in such condition that it can be handled without coming apart.

This process was developed in a North Carolina area where the river bottom gum trees were small and crooked, and the resulting rotary veneer exhibited extraordinary tendencies to warp and twist, both in single-ply veneer and in any multiply products into which it was glued.

A detail of one roller of the slitting machine is shown in Fig. 4, with another slitting roller in the shadows beyond.

The slitting machine, or tenderizer, stands in front of the veneer drier, so that the off-bearers on the tenderizer transfer the green slitted veneer to the drier. The only extra manpower is the crew serving the tenderizer. In this way, time, floor space and labor are reduced.

The slitting or slotting can be done after drying, although this requires more handling and the results are not as satisfactory, because of the easier splitting of dry veneer.

A truckload of tenderized veneer is amazingly flat after drying, almost doubling the number of veneer layers per foot of height as compared with normal unprocessed veneer.

When tenderized veneer is glued into plywood, much of the warping tendency has been eliminated, although some claim that the partial filling of the slots with glue is inclined to reduce the effectiveness of the slitting.

Tenderizing is of maximum value on the thicker cuts of rotary veneer, 1/12 in. to ¼ in., although some users find it advantageous with veneer as thin as 1/16 in. Face veneers that are to be finished should not be tenderized.

This tenderized veneer is superior to loose-cut veneer, since the slots cut across the angling grain directions and eliminate the spiral twisting effects that usually persist with loose-cut veneers.

Q. 29. What is the maximum thickness of rotary cut veneer that can be obtained for use as rotary cores?

A. 29. Rotary veneer is seldom thicker than ¼ in., although some low density species are occasionally cut to 5/16 in. Such thick cuts are a severe strain on lathes and inevitably result in the cutting checks shown in Fig. 5. These will be conspicuous if the edges of the plywood are exposed, molded or finished.

Q. 30. Is there any practical way of "unwarping" or "dewarping" plywood after it is glued?

A. 30. A few pet theories have been advanced, some of which work part of the time, but the overall results are inconsistent. *(Please turn page.)*

Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

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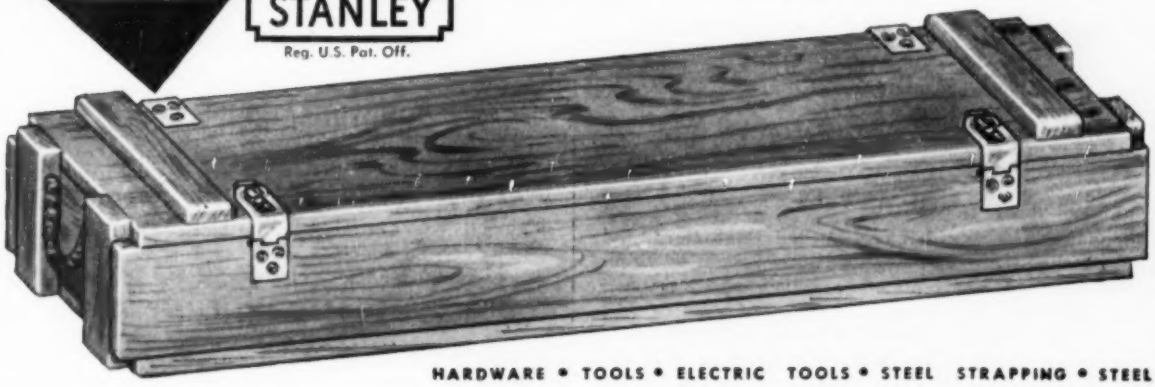

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

Q. 31. Will plywood, finished on one side, be more likely to warp than plywood finished on both sides with reasonably equivalent coatings?

A. 31. The answer is an emphatic YES, because any unfinished wood surface will absorb and give off moisture and produce internal stresses that emphasize warping tendencies.

It is a mark of quality in any plywood product to find that the unexposed plywood surfaces have been well sealed against changes in moisture content.

Q. 32. Are warping tendencies more difficult to counteract in veneers cut from high density species than in those of low density?

A. 32. High density species give the most trouble because of the greater concentration of fibrous structure per cubic inch. Some low density species, such as basswood, are highly prized for their lack of warping tendencies.

Car-Washers for Employees

Weyerhaeuser Timber Co., Tacoma, Wash., has installed a pair of free car-washers for the 2447 employees of its Longview forest products plant. Operating around the clock, the car-washers are automatically actuated when an auto is driven over the service-station-like alarm hose. Water is pushed out of nine nozzles at 125 pounds of pressure for a sequence of 45 seconds. A time relay shuts off the water automatically. Drivers remain in their cars during the washing period.

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The earliest traces of prefabrication in America began about 1624. About 100 years later—in 1727—houses "all cut to be erected" were shipped from New Orleans to the West Indies for shelter of persons immediately on their arrival at a new settlement. In 1848, the California gold rush brought thousands of people to the Pacific coast and created a housing shortage. Prefabricated houses were exported to California from France, Germany, England and Belgium, and even from China, New Zealand and Tasmania.

?

In 1951 the Douglas fir region produced 35% of the nation's softwood total.

?

The period 1940 to the present has witnessed the greatest expansion of the practice of forestry on private lands in the country's history.

?

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?

A wooden navy dock built in 1831 at Pensacola, Florida, is still in use.

?

The railroads use 30% of all lumber used in the United States.

?

The wood industries in World War II supplied some 1,200 different items for the Army alone.

?

The oldest trees in Oregon are the Sierra or Oregon junipers.

?

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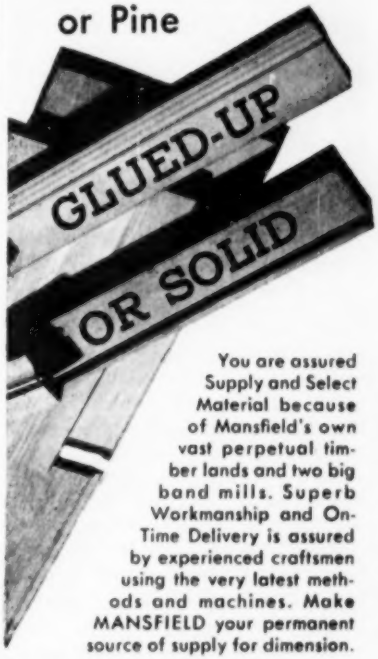

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With his broad and colorful background in sales, his legendary reputation as a "doctor of sick business," and his previous experience in plywood promotion, Wallace E. Difford was a "natural" for the post of managing director of the Douglas Fir Plywood Association to which he was recently renamed. He is a broad-gauge marketing executive.

Born in Illinois and educated at the University of Chicago, Difford has been in turn a country lawyer, cattle rancher and salesman. His energy is boundless, and his leadership is keyed to his favorite admonition: "Plan your work, and work your plan".

He is a former secretary-manager of the Kentucky Retail Lumber Dealers' Association and served as president of W. J. Hughes & Son, Louisville sash and door jobbers.

In 1940, after two years of Difford's dynamic leadership, DFPA, which then numbered only 30 members, won the American Trade Association Executive Award for outstanding achievement.

During the war years, Difford grew restless. Plywood was in short supply and the challenge was gone. So, in 1946, he established W. E. Difford & Sons, Inc., a plywood and lumber sales and marketing development company in Seattle.

The challenge which he has now accepted, of further sharpening the sales promotion program of the Douglas fir plywood industry which has doubled in capacity since 1946, means that he doesn't have much time for things like golf. But he does some gardening (roses) at his country place across the Narrows from Tacoma, and is an ardent grand-daddy. Reading is his other hobby, but he would rather read a market report than a best-seller.

JAMES M. BROWN, SR.

James M. Brown, Sr., chairman of the board of Northwest Timber Co., Gibbs, Idaho, is one of the most widely known and best loved men in lumbering in the West. Not only has he been actively identified with the industry for a lifetime, but he has given freely through the years of his time to association work for industry betterment.

In World War II, he was one of the initial appointees to the lumber division of the War Production Board and served on it continuously. A past president of Western Pine Association, he has served on its board of directors continuously for the past 15 years, and has worked with various committees.

He has long been a member of the board of the National Lumber Manufacturers Association, and when American Forest Products Industries, Inc., was set up as a separate organization, he was one of the first members of its board. He still serves as a director of both groups.

Mr. Brown came naturally by his interest in lumbering, since his father was a logger at Chippewa Falls, Wis. He moved west to Harrison, Idaho, in 1912, and built and operated a shingle mill. During World War I, he purchased one mill and built another at Corvallis, Ore. In 1918, he formed Long Lake Lumber Co., Spokane, Wash., and directed it for many years.

His two sons are following in dad's footsteps. J. M. Brown, Jr., is president of Pack River Lumber Co., Sandpoint, Idaho, and L. V. Brown is president of Northwest Timber Co.

Michigan Carbide Course to Be Held January 26-30

Prof. L. A. Patronsky announced at presstime that the University of Michigan will hold a special course on Carbide Wood Cutting Tool maintenance for woodworking tool maintenance men during the week of January 26-30 inclusive at the university's Wood Technology Laboratory in Ann Arbor.

As announced in Wood and Wood Products last June, the course has been arranged with the co-operation and technical assistance of some 18 manufacturers of equipment and supplies for carbide tool maintenance. A full-time program has been arranged, with instructions to be given by regular school faculty members, engineers, technicians and specialists in various operations.

Students will be taught the best and latest grinding methods and procedures on actual production tools utilizing the modern efficient equipment designed to grind and sharpen carbide wood-cutting saws, groovers, knives and router bits.

The second day of the course will be spent at the Detroit plant of Carboloy Division of General Electric Co., where the manufacture of cemented carbides will be seen, followed by a discussion on the selection of carbide grades for use in the woodworking field.

Complete information may be obtained from Prof. L. A. Patronsky, University of Michigan, Ann Arbor.

the PERKINS GLUE LINE

PERKINS GLUE COMPANY — Lansdale, Pa. * Kitchener, Ont. * High Point, N. C. * Shawano, Wis.

Perkins Corox liquid ready-for-use vegetable glue is excellent for edge gluing stock to be pressed in a clamp carrier as shown above. Samples of Corox are available to woodworkers.

Single Source For All Types of Glue

A single source for all wood adhesive requirements?

Glue-users — large and small — benefit tremendously when they can obtain all their glue room requirements from a single reliable source. Ordering is simpler, better service is made possible, transportation costs are reduced and other obvious benefits accrue to the glue user when a single source of supply is maintained.

Perkins Glue Company is the only major glue supplier offering the full range of resins, caseins, vegetable and prepared hide glues. This assures an unbiased approach on the company's part in offering you the right glue for a particular job and makes it possible for you to get as many different adhesives as you may need from one source.

The Glue Line

The regular editions of "Perkins Glue Line", external house organ of Perkins Glue Co., have not appeared in recent months for reasons beyond our control.

The publication will appear again in the near future as a quarterly and the several thousand readers on our mailing list will receive each edition.

Glue Powder Storage

Powdered resin or casein glues should never be stored directly on a concrete floor. Moisture from the concrete will considerably shorten the storage life of the resin or casein.

If the storage room floor is concrete, place boards underneath the drums as a precaution.

Fast-Setting Corox Gives Strong Bond In Joint Gluing

Users of Perkins Corox liquid ready-for-use glue report that excellent joints are obtained even after short clamping periods. This excellent prepared form of vegetable glue has received wood fabricator's stamp of approval for a wide variety of gluing applications.

Assembly gluing is the primary place for use of Corox, but large quantities of this glue are also used in edge bonding of corestock. Cores bonded with Corox may later be hot pressed in panel manufacture without a softening of the glue line.

While longer pressure periods are advisable where possible users of Perkins Corox have reported excellent joints after clamping times of as little as ten minutes.

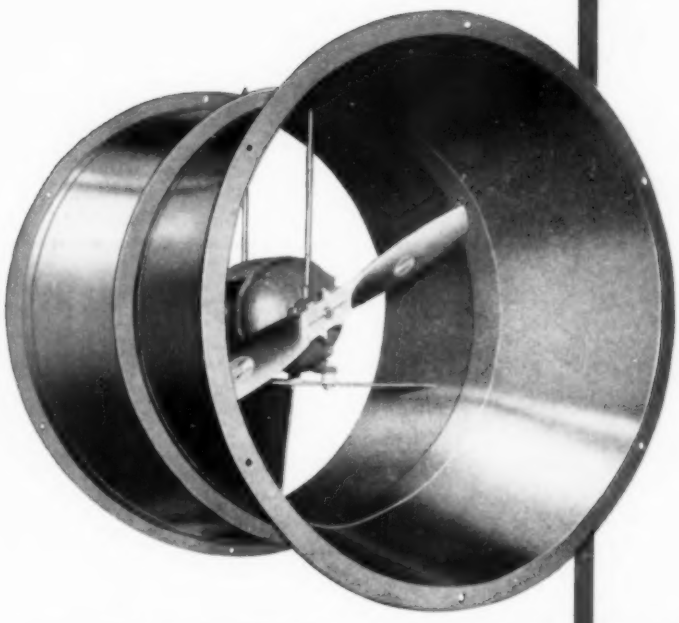
In addition to fast set, Perkins Corox offers an unapproached advantage over other ready-for-use adhesives in that Corox joints get stronger with age rather than weaker as is the case with many other liquid adhesives offering a quick bond.

Perkins Corox—due to the elimination of mixing, heating, and other laborious and costly operations — is considered to be one of the most efficient glues ever offered furniture manufacturers.

Full information and test samples may be obtained from Perkins Glue Company, Lanesdale, Penna.

Founded in 1899

Perkins Glue Company is one of the oldest firms serving furniture and plywood manufacturers. The Company was founded in 1899.



HARTZELL *Reversible* dry-kiln fans for faster, more uniform LUMBER DRYING

Here's a broadside view of the fan. Mounted in a flared cylinder, with angle-iron at each end. It's easy to install. Can be reversed manually or automatically.

Let's get the facts straight: If you were to run this fan one way you would get as much or more air-movement as you would from any good *one-way* fan of the same size; then you can run this Hartzell fan "backward" and get *exactly* the same air-delivery in the opposite direction.

To a dry-kiln man, that opens up a mighty inviting picture. It means he can alternate the direction of airflow in his kilns as drying proceeds. And that means uniform drying — no case-hardening at one point or incomplete drying at another. Faster, too — no slow spots. Obviously, a better product.

Revolutionizes old kilns. Makes new ones better.

Mail the coupon below for complete information, or write, telling us your particular problem.

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